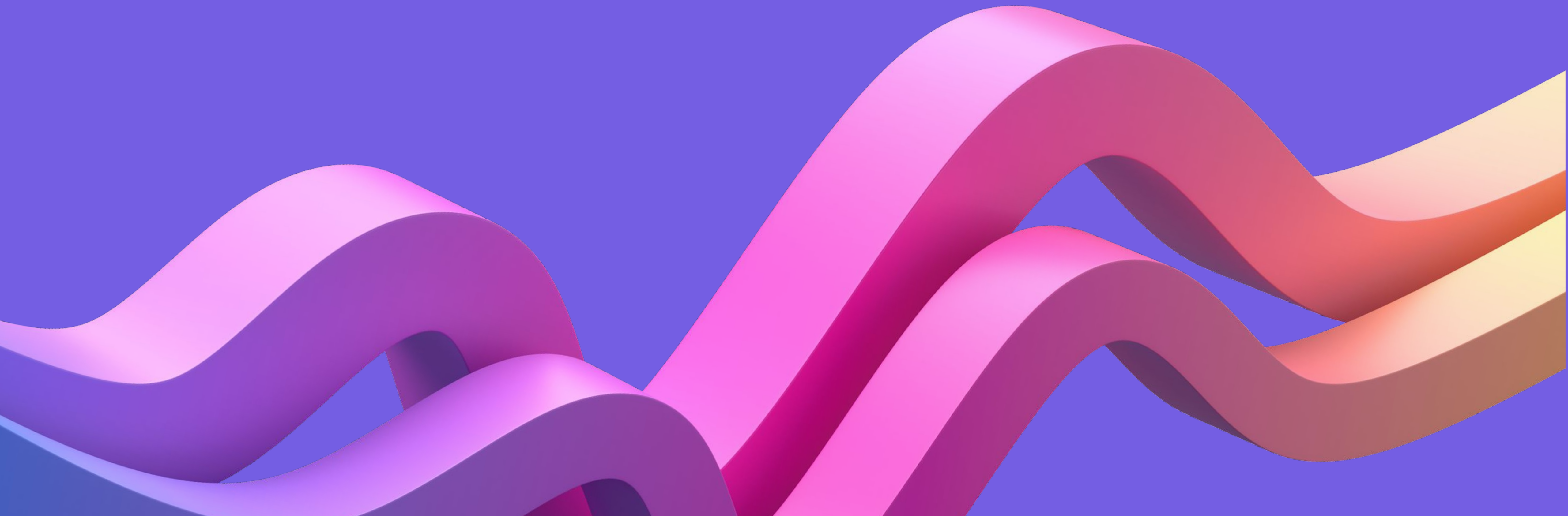




# A 12-Month SRE Guide to Cyber Five 2024



# Topics Covered



## Cyber 5 Trends & Challenges & Tips:

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Largest increase and lowest inflation over the last three years.

# Cyber 5 Online Sales & Inflation 2021-2023

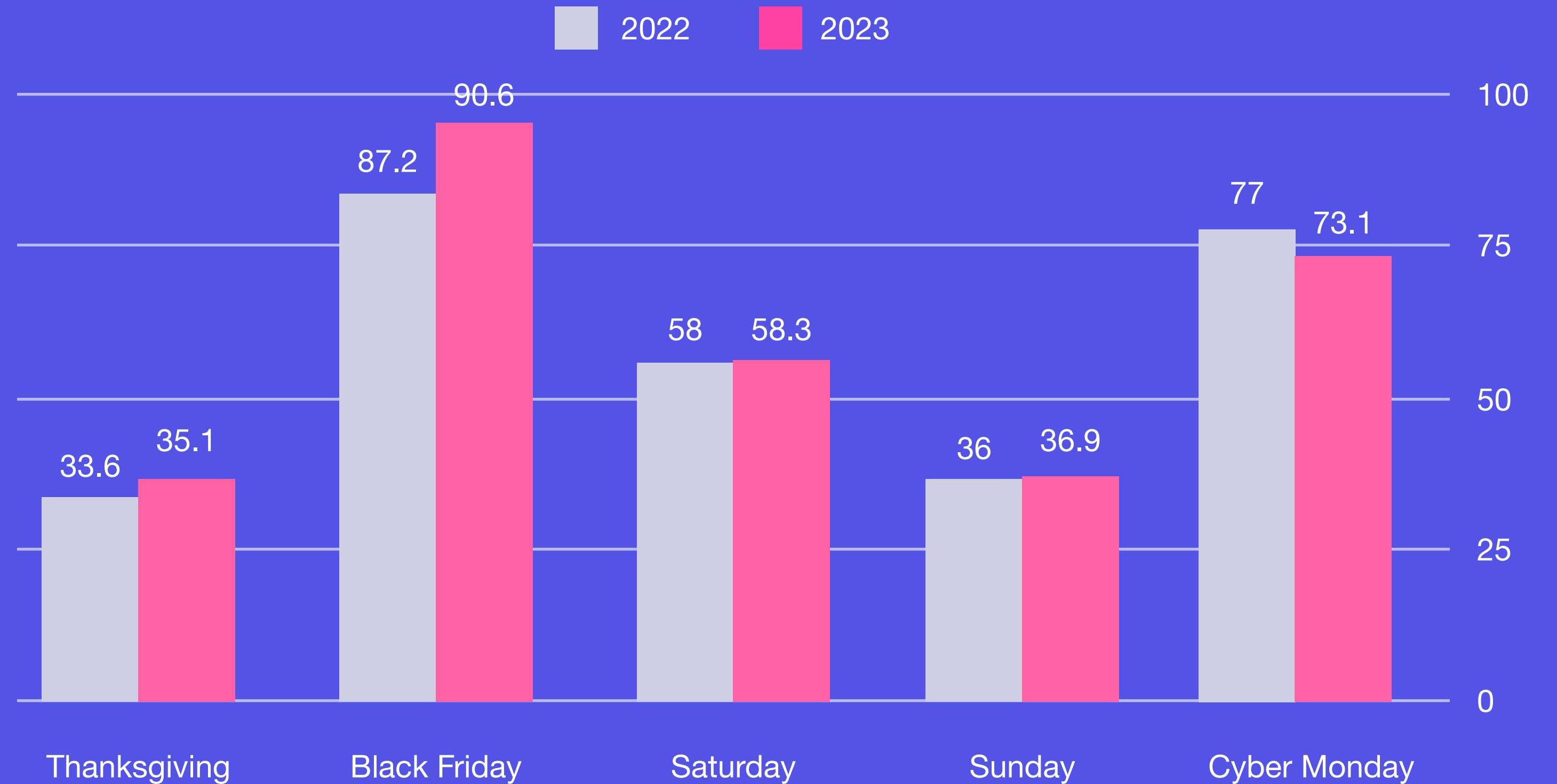
	2021	2022	2023
Online Sales <sup>1</sup>	\$33.9 billion	\$35.3 billion	\$38 billion
YoY difference <sup>1</sup>	↓1.4%	↑4%	↑7.8%
Inflation Rate <sup>2</sup>	7.0%	6.5%	3.2%

1. Adobe Analytics [2021](#), [2022](#), [2023](#)

2. US Inflation Calculator, [2023](#)

# Online Visitors by Day during Cyber 5 2023 (M)

Not surprisingly, Black Friday is the busiest online shopping day in terms of visitors.



1. National Retail Federation [2022](#), [2023](#)



# Historical Downtime and Issues = Revenue Loss

In the peak hour of Cyber Monday 2023 (10:00 to 11:00 pm Eastern), consumers spent \$15.7 million every minute.<sup>1</sup>

Company	Issue
Amazon on Prime Day July 14, 2018 <sup>2</sup>	Broken landing page and links on the East and West coasts of the U.S. for about 75 minutes. Approximately <b>\$90M</b> sales loss.
Office Depot on Cyber Monday Nov 22, 2021 <sup>3</sup>	Site offline for nearly three hours.
TicketMaster for Taylor Swift tickets, Nov 15, 2022 <sup>4</sup>	Ticketmaster indicated that they had 3.5B requests - 4x their peak- and about 15% of users experienced difficulties.
Petsmart Nov 24-28, 2022 <sup>5</sup>	Performance issues: Largest Contentful Paint (LCP) of 13.84 seconds on Black Friday. (LCP of 2.5 seconds or faster is considered good per Google.)

1. Adobe Analytics [2023](#) 2. Tech Crunch [2018](#) 3. Digital Commerce 360, [2021](#) 4. Cockroach Labs [2023](#) and Ticketmaster [2022](#) 5. Digital Commerce 360, [2022](#)

# Inching Away from Pandemic Trends - Mobile on the Rise



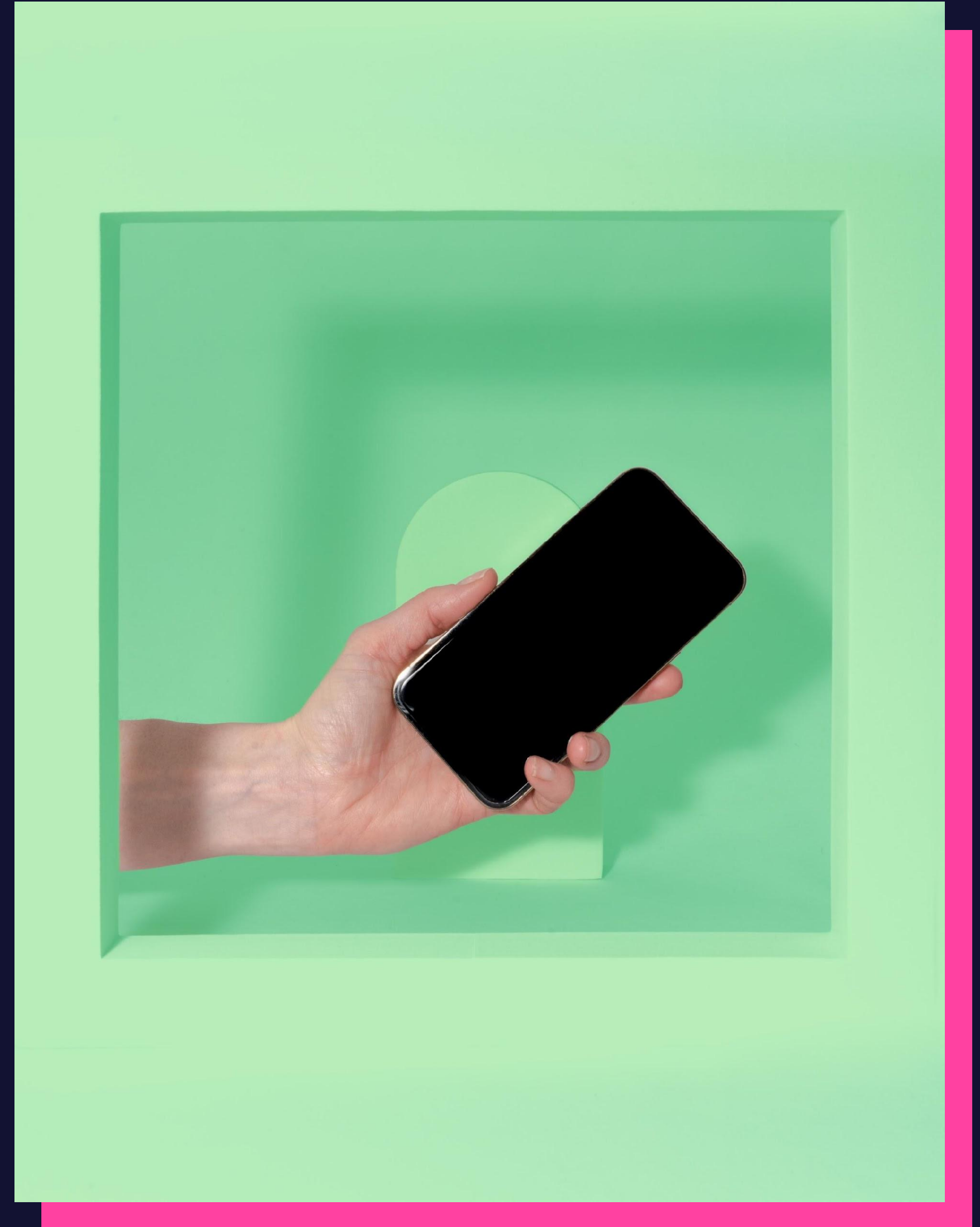
Mobile made up 51.8% of online sales Cyber Weekend, up from 49.9% in 2022 and 39.7% in 2021 (just Cyber Monday) with WFH



Discounts increased to 31% off listed price (vs. 25% in 2022 & 12% in 2021) for electronics.



Curbside pickup was used in 12.7% of online orders during Cyber 5, down from 14.8% in 2022, and 18% in 2021 (just Cyber Monday).



# Web Attacks and Bots eCommerce Invasion

From Akamai's research paper, "[Entering Through the Gift Shop: Attacks on Commerce](#)," June 2023

**14.53B** web attacks

Most-targeted vertical - 34% of Akamai's observed attacks<sup>1</sup>

**32%** benign and **68%** malicious

Even "benign" bots can waste resources and lure customers away!

**5 trillion** bot requests

In 15 months! — Malicious bots rose during holiday period.<sup>1</sup>

**10 billion** credential stuffing attacks in early 2022 with retail heavily targeted.<sup>2</sup>

Hackers steal loyalty points and monetize account data.<sup>2</sup>

1. Akamai Research Report, [Jan 1 2022 - March 31 2023](#)

2. Okta Report, [2022](#)

3. Okta Report, 202



# The Countdown to Cyber 5 2024 Starts Now

## 12-steps to success

January	February	March	April	May	June
<a href="#">Explore Personalization</a>	<a href="#">Ramp up Visitor Tracking</a>	<a href="#">Review Product Pages</a>	<a href="#">Evaluate Search</a>	<a href="#">Time for a SEO Checkup</a>	<a href="#">Rev up Web performance</a>
July	August	September	October	November	December
<a href="#">Consider Traffic &amp; Bot Management</a>	<a href="#">Load and Stress Testing Planning</a>	<a href="#">Build out Test Environments</a>	<a href="#">Conduct Sustained Stress/load Testing</a>	<a href="#">Execute Final Verification Tests</a>	<a href="#">Analyze Holiday Traffic Patterns</a>



# January - Explore Personalization Opportunities

Limited or outdated personalization can have a negative effect on the four golden signals and revenue.



**76%** of customers expect personalization<sup>1</sup>



**71%** of customers get frustrated without it<sup>1</sup>



## Signal Impacts

- Latency - Irrelevant recommendations slow page loads
- Traffic - Ineffective personalization inflates browsing
- Errors - Outdated data causes faulty recommendations
- Saturation - Too much dynamic content generation overloads



## What to Consider

- Contextual, real-time recommendations keep visitors engaged, improving conversion rates
- Personalized content matching customer interests increases average order value
- Privacy-focused personalization builds trust/loyalty, reducing unsubscribes
- Optimized infrastructure keeps latency low on personalized content generation

# February - Ramp Up Visitor Tracking

Analyzing your visitor traffic can help predict and prepare for future traffic and performance demands.

**86%** of online visitors are anonymous<sup>1</sup>

Anonymous visitors are **5.3x** more likely to buy with engagement<sup>1</sup>



## Key Insights

- Granular visibility into site usage and traffic patterns
- Identify peak site volumes to inform infrastructure
- Detect bad bots for improved security and savings
- Monitor performance impacts to visitor experience



## What to Consider

- Modern fingerprinting maximizes accuracy without performance hits
- Recognize anonymous high-value visitors for personalization
- Drive more conversions and order value with tailored experiences
- Solutions can balance security, experience, and privacy

# March - Make Your Product Pages Faster

Product page latency is critical since they can be content-dense and they have the greatest effect on revenue.

**2.5x** higher conversion rates on sites loading in 1 vs 5s<sup>1</sup>

Nearly **70%** of consumers say page speed affects their likeliness to buy<sup>2</sup>



## Page Performance

- Measure real user load times for product detail pages
- Identify worst performers to address speed bottlenecks
- Review image optimization and compression
- Check caching effectiveness on key pages



## Tag Management

- Audit tags on product pages affecting experience
- Consolidate/remove unnecessary tags slowing performance
- Implement tag manager for easier debugging/maintenance
- Leverage EST-style solutions to shift processing to edge



# April - Evaluate Your Site & Product Search

Search can have a positive or negative affect on the four golden signals - especially with holiday traffic.



## Holiday Insights

- Holiday loads stress test search, revealing weaknesses
- Black Friday spikes demonstrate search gaps
- Can assess abandoned cart rates tied to search
- Optimizing search pre-July allows time to improve indexing, infrastructure



## What To Avoid

- Slow search spikes latency from aimless browsing
- Unfruitful searches cause visitors to linger, inflating traffic
- Outdated indexes lead to broken links and "no results" errors
- Heavy search load can saturate backends



## What To Consider

- Fast, relevant search converts visitors → customers → revenue more quickly
- Precision recommendations increase order values
- Improving search infrastructure (indexing, caching, load balancing) allows systems to easily scale

# May - Time for an SEO Checkup

SEO is a top of mind concern for web teams, product marketing, demand generation, and the C suite. SREs can make an impact by boosting page load speed and other metrics, while improving customer experiences.

**40%** of eCommerce website traffic originates from organic search & paid search ads<sup>1</sup>

## Technical Health

- Review site crawl budget - how much is allocated vs utilized
- Check indexing coverage of key pages
- Confirm XML sitemaps are optimal
- Address technical flaws blocking bots/crawlers

## Core Web Vitals

- Measure real user CWV metrics
- Identify pages not meeting speed thresholds
- Use prerendering to accelerate page loads & improve TTFB and FCP
- Optimize prioritized URLs for visibility
- Aim for at least good thresholds on key pages

# June - Rev Up Site Performance Across Platforms

Getting close to performance and load testing makes it a good time to look at overall web performance across devices after product pages and SEO boosts

Mobile is: **53%** of web traffic<sup>1</sup> and **65%** of online sales<sup>2</sup>



## Measurements

- Instrument real user monitoring for complete page load visibility
- Set reasonable page load time budgets for different priority levels
- Identify worst mobile performing pages for threshold exceptions



## Optimizations

- Establish technical hierarchy for optimization priorities
- Tuning CDN rules and caching mechanisms for key pages
- Review Core Web Vitals metrics on mobile sites
- Address marginal APIs slowing mobile app performance



# July - Make a Plan for Traffic & Bot Management

It is time to ramp up virtual waiting rooms and bot management. Ensure uptime, better user experiences, protect your site from malicious bots, and don't waste resources.

**10x** more traffic on Black Friday<sup>1</sup>

35.7% of traffic is bots or fake users<sup>2</sup>



## Protection

- Model expected traffic and provision infrastructure accordingly
- Leverage intelligent waiting rooms to smoothly manage spikes
- Detect bad bots with behavior analysis and fingerprinting



## Optimization

- Shift bot loads to minimize infrastructure costs
- Focus capacity for real user experience consistency
- Encourage good bots via proper indexing and metadata
- Improve visibility with granular bot classification

# August - Prepare for Load and Stress Testing

Proactively model anticipated traffic, configure isolated test environments, and incrementally scale up load tests over months to ensure infrastructure handles peak demand.



## Environmental Setup

- Model expected user loads based on forecasts
- Script real world behavioral flows for tests
- Build optimized test environments isolated from production
- Iterate existing chaos testing to inform scenarios



## Execution & Analysis

- Gradually scale up load volume week over week
- Monitor key performance metrics under load
- Identify bottlenecks and anomalies early
- Tweak configurations, resource allocation based on findings
- Ensure production readiness for peak demand periods

# September - Build Out Test Environments

Construct replicated test environments modeling production conditions with configurable infrastructure, caching, alerts, and user flows for optimal load testing isolation.



## Environments

- Create production clones isolated from live systems or use canary environments as a lower cost option
- Model databases, caching systems, networks, origins
- Simulate third party services and integrations
- Support rapid reprovisioning as needed



## Configurations

- Configure autoscaling rules, resource allocation
- Define monitoring rules and alerts
- Replicate production CDNs and caching policies
- Script sequence flows based on analytics



# October - Conduct Sustained Load and Stress Testing

Subject environments to weeks-long peak traffic simulations mirroring real-world global patterns, instrumenting full monitoring visibility to refine infrastructure readiness before exposing production.



## Workload Simulation

- Drive peak projected Black Friday volumes
- Make sure payloads & protocols match production flows
- Model transaction spikes and lulls
- Reflect global traffic distribution



## Monitoring & Optimization

- Instrument for full visibility on performance
- Review golden signals for degrading metrics
- Validate autoscaling policies can handle surges
- Identify remaining gaps to address
- Simulate failovers and isolate from production

# November - Execute Final Verification Tests

With peak season imminent, validate reliability under projected loads in controlled environments while comprehensively scrutinizing monitoring and alerts to confirm noise-free observability.



## Verification

- Re-run full peak projections from updated data
- Perform testing in pre-production staging environments
- Confirm extreme load performance for 1-2 hour intervals
- Avoid risks of interfering with live production traffic



## Monitoring & Alerting

- Audit all key golden signal alerts to confirm they are active
- Check thresholds are calibrated for surges
- Fine tune observability filtering to minimize noise
- Enable real user monitoring for visitor experience metrics
- Alert response playbooks ready for incident escalation

# December - Analyze Holiday Traffic Patterns

With Cyber 5 wrapped, dive into segmented traffic data to pinpoint infrastructure and experience gaps while also charting a data-driven reliability roadmap for smoothly scaling future demand.

## Traffic Analysis

- Breakdown key visitor types, browsing behaviors
- Identify inefficiencies in site flows, infrastructure
- Quantify revenue losses tied to experience gaps
- Project growth for 2025 peak demand capacity

## 2025 Readiness

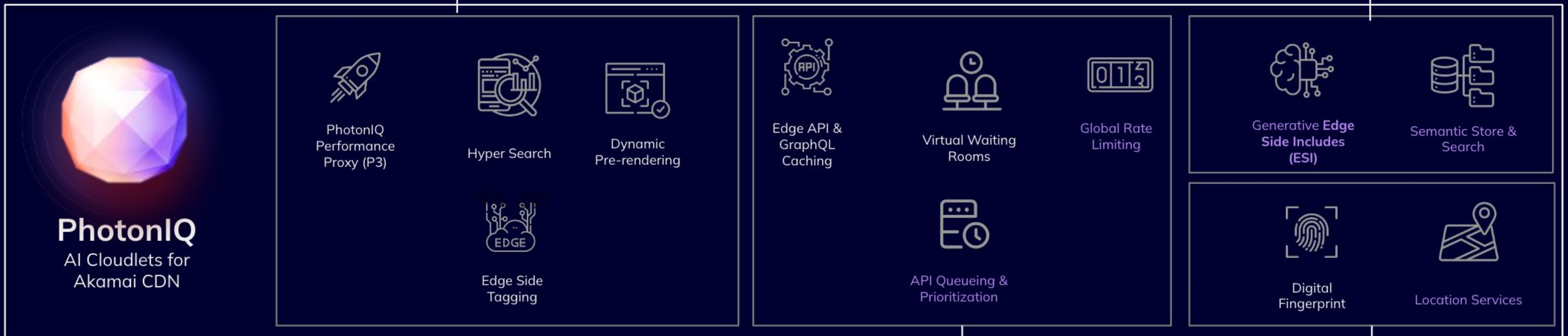
- Frame objectives for customer experience and operations
- Develop reliability roadmap grounded in data insights
- Prioritize solutions delivering flexibility
- Perfect preparations well in advance of 2025 surge



# PhotonIQ Cloudlets for eCommerce are Designed for 60 Day Implementation

## CLIENT OPTIMIZATION & OFFLOAD CLOUDLETS

## GENERATIVE AI CLOUDLETS



## ORIGIN OPTIMIZATION & OFFLOAD CLOUDLETS

## KNOW YOUR VISITOR





- Edge speed & AI = fast performance & intelligent mechanisms
- Add to current systems, no code changes
- Minimal impact on people resources, leverage Macrometa experts
- Use 1 or more Cloudlets to meet your goals
- **Get ready to boost revenue and efficiency in 2024:**
- **Schedule a chat with an Enterprise Solution Architect today!**