

IndexNow

A Real-Time Protocol for Measurable Web Indexing Efficiency

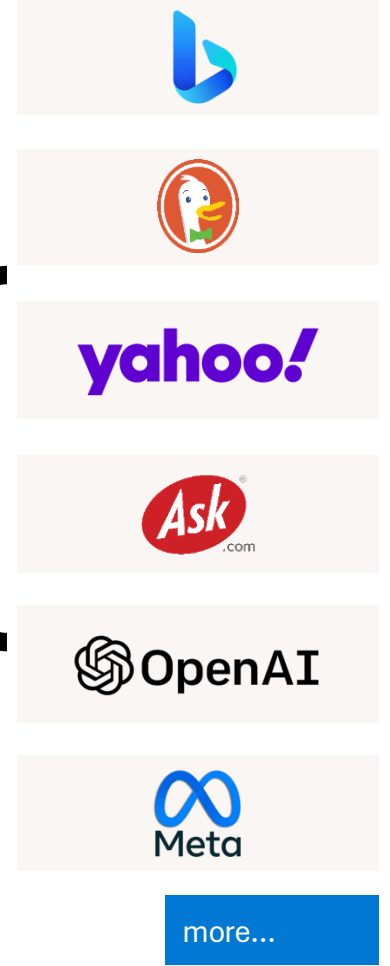
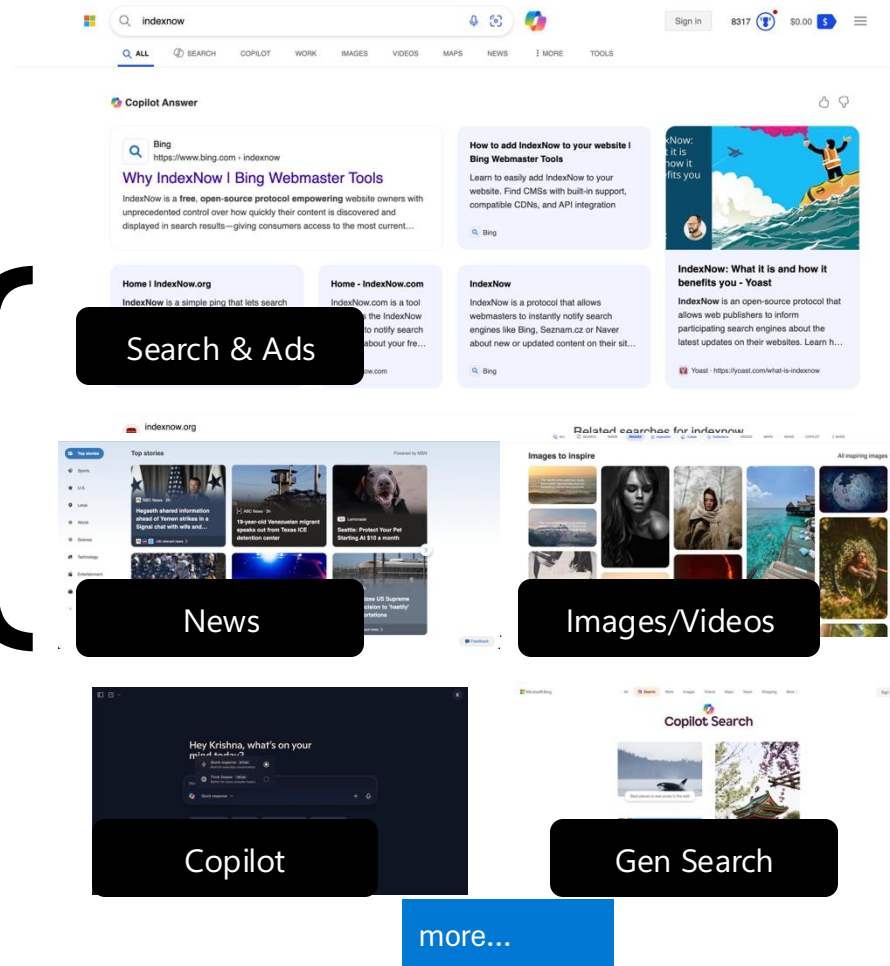
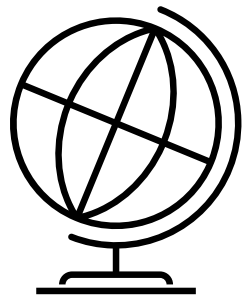
Dr. Krishna Madhavan

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At Microsoft, I drive the collection and understanding of the web to drive experiences across Bing, Copilot, and beyond.



**The web needs a new
approach to crawling**



Web crawling and bots represent a substantial portion of internet traffic

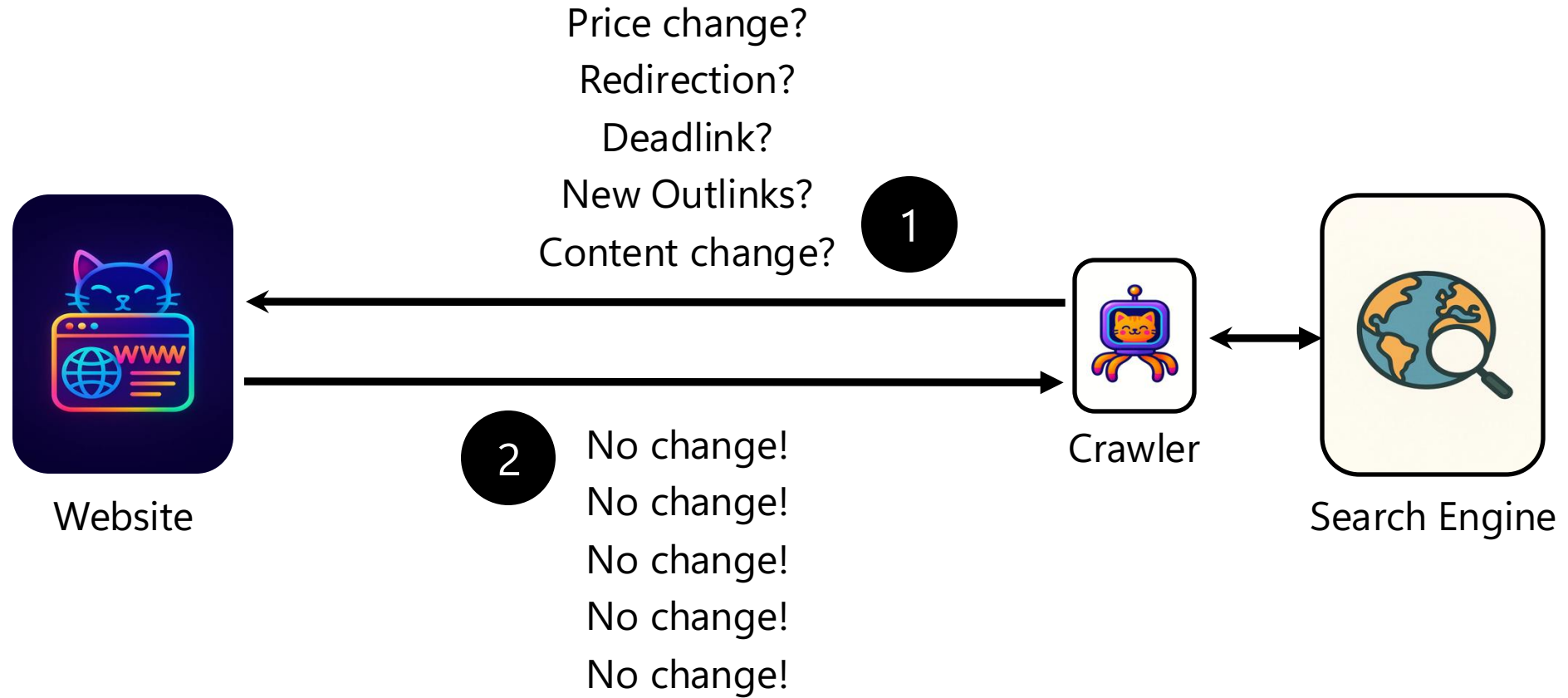
30 - 50%

Estimated global web traffic generated by bots depending on definition, methodology, & source

18%

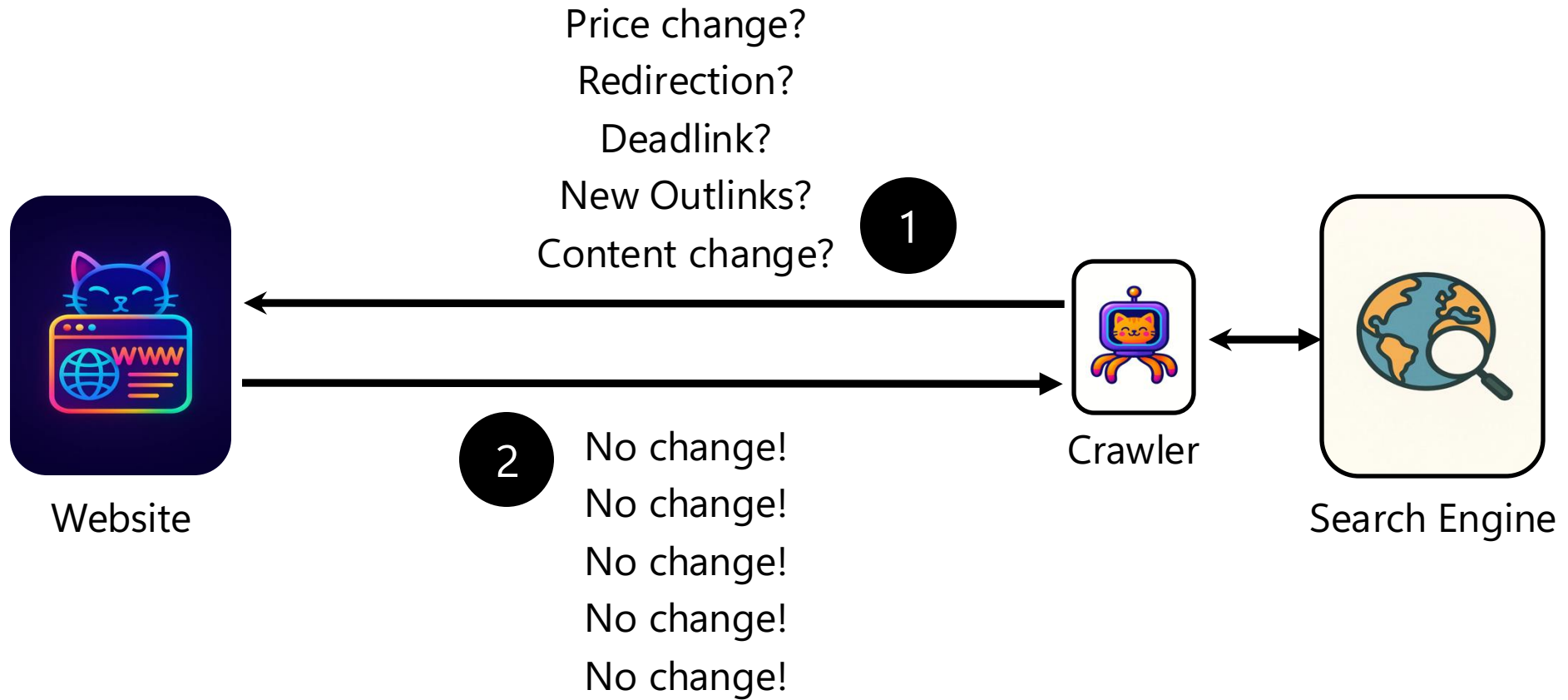
YoY growth in bot traffic (Source: [Cloudflare, 2025](#))

Web crawling is highly inefficient and is primarily “~~smart~~” guessing



Inefficiency in crawling: Smartest of crawling is still not smart enough because it optimizes “**guessing**”!

Legacy crawl model is in bad need of innovation



Crawlers repeatedly visit pages with little to no change!

Crawl redundancy wastes bandwidth, compute, and is not green!

Hard to scale across the tail of the web: billions of rarely updated URLs

Some challenges in crawl optimization

– modeling content change

01 Missing update signals

Long-tail websites often lack consistent update signals like sitemaps or structured metadata

03 Undetectable algorithmically

Content changes may be visual, partial, or script-driven

05 Web is truly heterogenous at extraordinary scale

Sites differ vastly in structure, depth of linking, technology, and update cadence.

02 E-Tags/Sitemaps not supported

Many sites still do not support E-Tags or Last-Modified headers

04 Historical baselines missing

Historical baselines are often missing, especially for rarely visited pages.

06 Freshness is a key new customer expectation

YoY customer expectations around content freshness is raising the bar for websites (from 1 day to less than a few seconds). Features like LastMod no longer enough.



Crawl Efficiency

Definition: The ratio of useful, fresh content crawled (new, updated, or deleted) relative to total crawl activity.

- **Crawl resource utilization** – A measure of how effectively crawler resources are allocated to pages that changed *meaningfully*.
- **Meaningful content change** – e.g. changes to primary text, schema, images, videos, or outlinks
- **High efficiency** = less waste, faster updates, and lower resource impact
- **E.g.** Crawling for small changes in view count on videos, going from 100 reviews to 101 reviews in inefficient



Challenge:

Balancing crawl efficiency and content freshness - especially hard with long-tail and low-signal pages

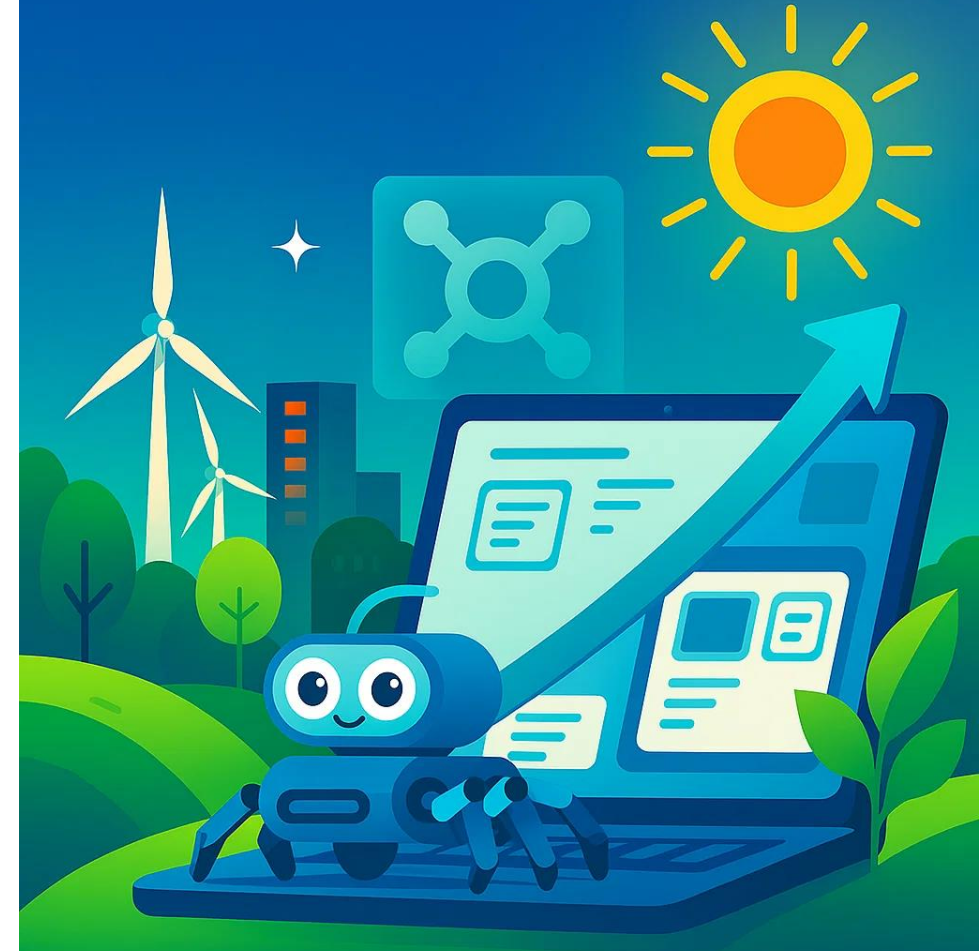


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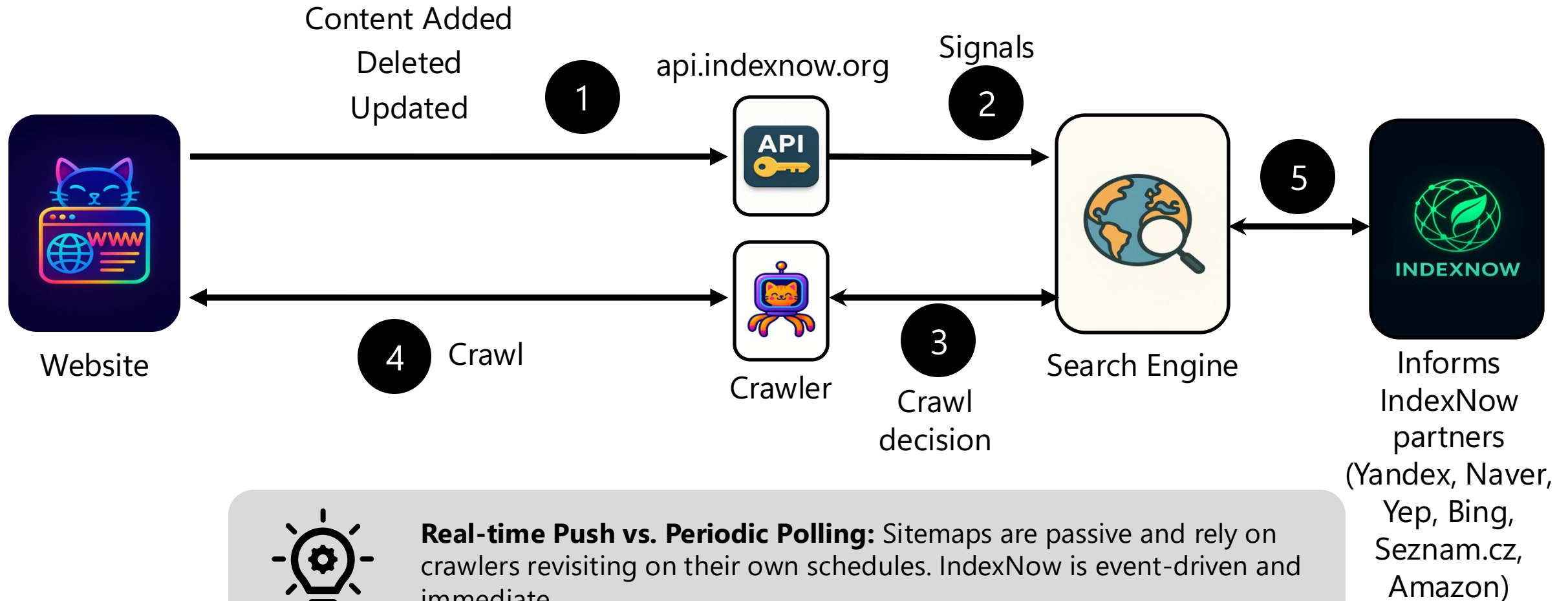
Smarter way to reduce crawl load, increase efficiency, and significantly enhance content freshness

- **Open Protocol** – Adopted by a rapidly growing community of 10s of millions of websites.
- **Timely and clear freshness signal** – Enable instant notification of **new**, **updated**, or **deleted** content
- **No wait** – Take control of crawling. No need to wait for crawler to visit
- **Highly efficient** – Reduce redundant fetching

IndexNow



IndexNow – Ensures swift indexing. Takes the guessing out of crawling!!



<https://www.bing.com/indexnow> [or] <https://www.indexnow.org>

IndexNow Impact

Significant impact through content freshness, crawl efficiency

50%

Clicked, newly indexed URLs in Bing SERP results originate from IndexNow



We do NOT favor IndexNow URLs in SERP. However, we do focus on content freshness over legacy content!



Our long-term goal: To make IndexNow environmentally friendlier!



With IndexNow, pages are only crawled when new changes are made to a page.

If every website adopted IndexNow, it could save the equivalent of **31 million acres of forest.**



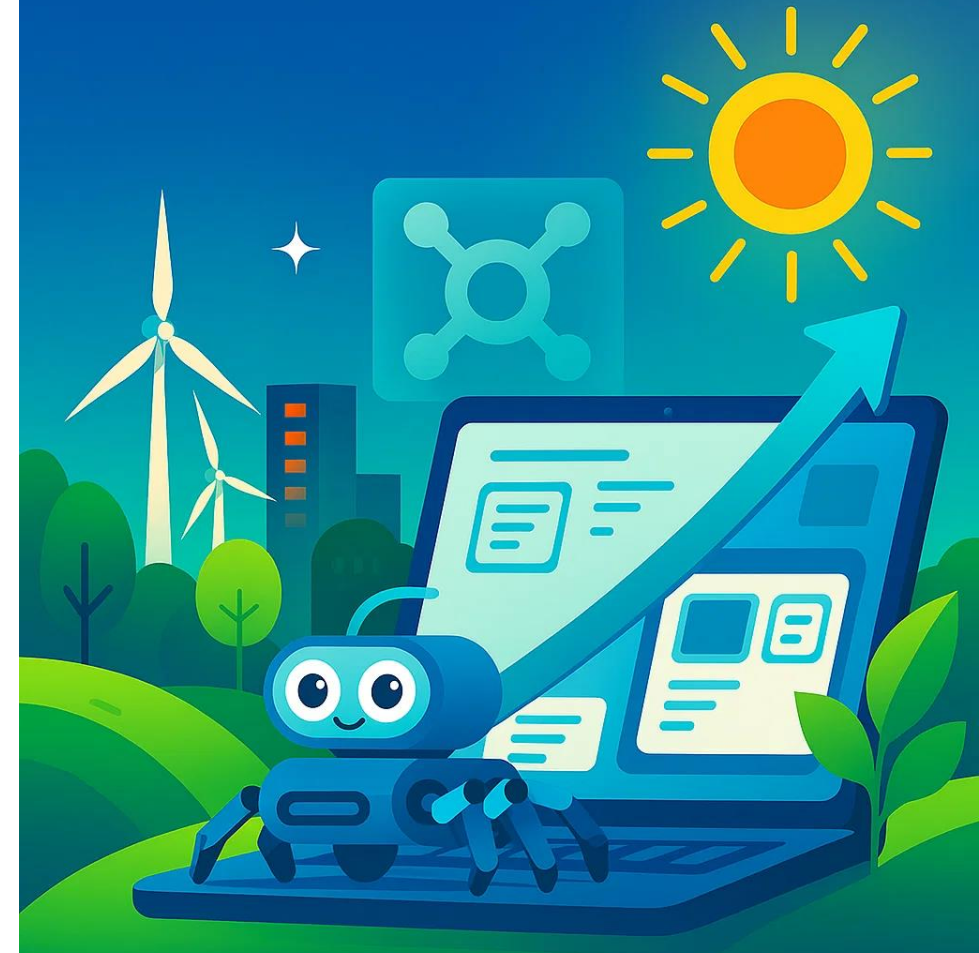
Credit Ahrefs: <https://ahrefs.com/index-now>

IndexNow: Opportunities

IndexNow's growth is due to major collaboration with so many amazing partners. Some opportunities for growth:

- **Ecosystem Fragmentation:** Not all search engines support the protocol today. The number are growing though!
- **Site Owner Awareness:** Many site owners are unaware of IndexNow or assume it duplicates sitemap functionality
- **CMS and CDN Integration Gaps:** While some platforms support IndexNow, others lack seamless or automated hooks

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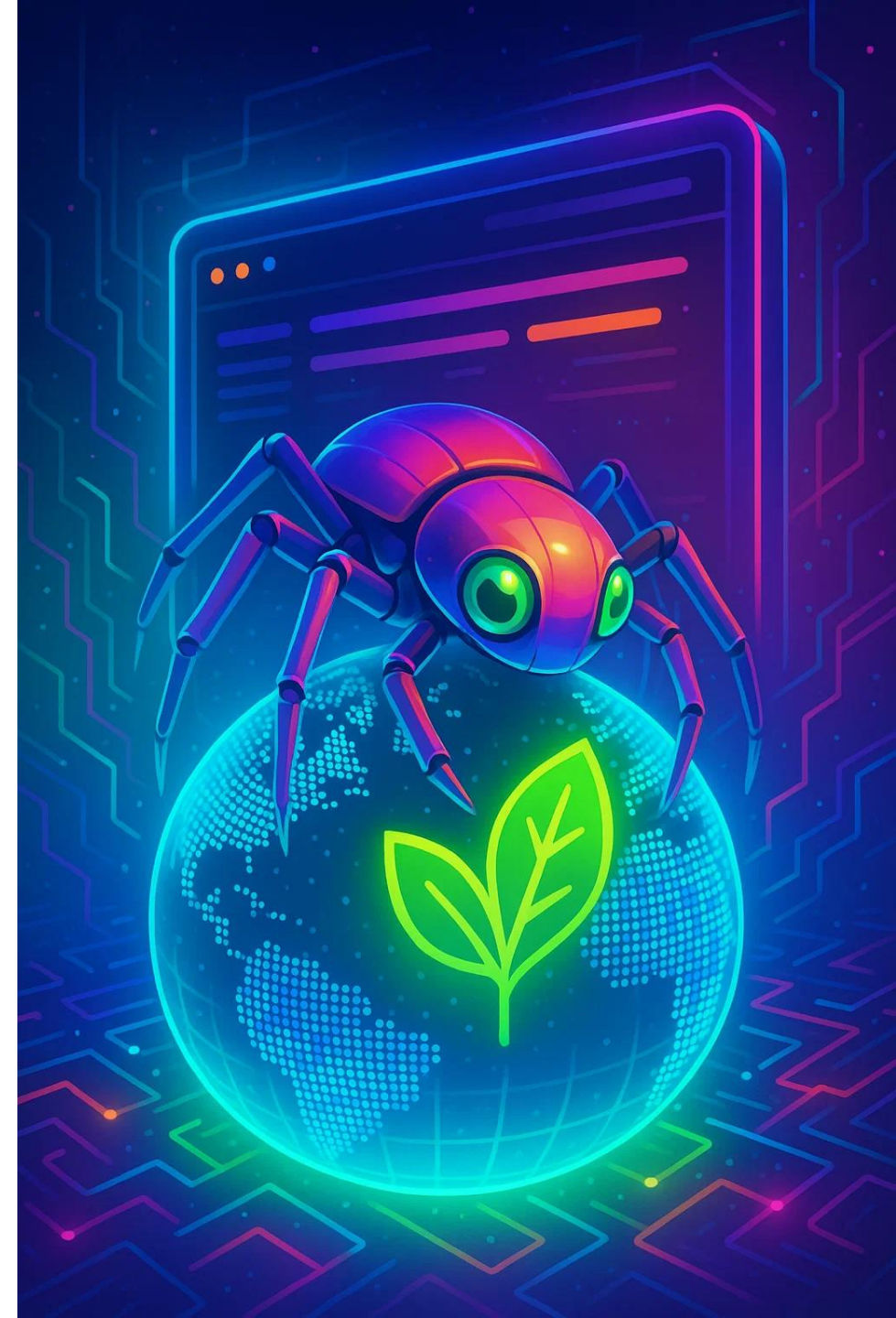


IndexNow: Path Forward

Please act now:

- Learn more: <https://www.indexnow.org>
- Learn about IndexNow partners:
<https://www.bing.com/indexnow>

Our commitment: We strive to make crawling efficient – especially for IndexNow-enabled sites.



Thank you!

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THE INTERNET NEEDS A NEW PARADIGM FOR CRAWLING

