2019

Black Friday & Cyber Monday

PERFORMANCE REPORT

catchpoint™

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EXECUTIVE SUMMARY

The 2019 Catchpoint Black Friday and Cyber Monday Performance Report measures and compares how well top retailers handled increased desktop and mobile traffic from holiday shoppers. The report examines the increased pressure ecommerce and online retailers feel when it comes to meeting customer expectations over digital performance, while also exploring the critical role proactive monitoring plays in performance management today.

The Black Friday and Cyber Monday Performance Report, now in its ninth year, presents the changing landscape of ecommerce, consumer behavior, and digital technology from 2011 to 2019. However, the report's true value may be the consistency with which high-performing retailers ensure website and application availability, reliability, reachability, and performance.

Traditionally, ecommerce companies monitored availability based on binary criteria of whether a site was up or down. But now complete outages occur less frequently than in the past. For today's customer, **slowness is the new downtime**. This means performance monitoring no longer focuses on code configuration, but rather customer conversions.

The 2019 Catchpoint Black Friday and Cyber Monday Performance Report is the industry's only performance benchmark monitored from the perspective of the end user. Unlike benchmarks from APM vendors or cloud-hosted IT solutions, this report collected performance data from monitoring locations within Catchpoint's global testing infrastructure. The benefit in running tests from 28 backbone nodes located across the United States is that it takes into account all of the factors within the delivery chain that can affect end-user experiences, including the performance of ISPs, CDNs, transit providers, and APIs. As a result, the report provides objective, third-party data on the impact of digital performance.

This year's report shows an industry in transition. Advancements in public clouds, edge networks, and distributed infrastructures played an instrumental role in forming today's customer-centric market, but legacy IT systems present roadblocks to aspiring customer-centric enterprises. According to Gartner, "60% of digital business initiatives will require I&O [infrastructure and operations] to report on users' digital experience, up from less than 15% today" by 2023. Indeed, many 'customer-centric' enterprises lack a customer-centric monitoring solution, and this made all the difference during traffic spikes over the holiday shopping weekend. The best way to ensure the quality of your end user's digital experience is to monitor application and network layer performance from where it matters most: the end user's perspective.

METHODOLOGY

Catchpoint monitored performance among "The Catchpoint 500," a list of United States ecommerce and online retail web and mobile sites. The homepages for all 500 retailers were monitored from Monday, November 25, 2019 at 12:01 AM EST until Monday, December 2, 2019 at 11:59 PM PST across 28 backbone nodes located throughout the United States.

The test ran at four-minute intervals, with measurements calculated by median value. To identify top performers, ecommerce and online retailers were grouped by merchandise category. The goal in monitoring webpage performance is to compare how U.S. ecommerce companies handled traffic spikes during the busiest shopping period of the year.

For the top 50 retailers, Catchpoint ran transaction tests on homepage, product page, search, add-to-cart, and view cart page from Monday, November 25, 2019 starting at 12:01 AM EST until Monday, December 2, 2019 at 11:59 PM PST across 28 backbone nodes located throughout the United States. The test ran at four-minute intervals, with measurements calculated by median value. Monitoring mission-critical transactions allows us to compare performance management of top ecommerce sites based on simulated user journeys from the perspective of end users.

TERMS AND DEFINITIONS:

Availability: Percent of time the page was available to the user with no failure to load or site maintenance messages displayed.

Backbone Nodes: Monitoring locations along core Internet Service Providers (ISP), which reduce the signal-to-noise ratio and provide more reliable performance data.

Document Complete: The time taken for the webpage to become interactive.

Number of Hosts: The number of unique hostnames present on the page.

Number of Items / Number of Requests: The number of HTTP requests the browser had to download while rendering the page.

Render Start Time: The time it takes for the page to start displaying something other than white space.

Response Time: The time it takes for the website's server to deliver the HTML of the page. It does not take into account the load of images and other third-party content on the page.

Synthetic Monitoring: Testing methodology that simulates requests to applications and services such as DNS, FTP, and APIs, to verify performance, availability, and reachability. These tests collect data on uptime and performance of simulated actions taken by the agents.

Time to First Byte: The amount of time between the user's initial HTTP request and the user receiving the first byte related to that request.

Transaction Tests: Synthetic tests that simulate user journeys on website to monitor performance of mission-critical transactions (i.e. search, browse, add product to cart, and checkout).

Webpage Load Time: time it takes for enough page elements to load for an end user to begin interacting with the page.

Webpage Load Time: The time it takes for user to be able to interact with page.

Webpage Response Time: The time it takes the browser to download and render every element on the page.

KEY FINDINGS

Although most ecommerce and online retailers were prepared well in advance of Black Friday, others were still caught off guard when traffic volume spiked.

The extra load that holiday sales bring is one of the main causes of performance issues for online retailers. Servers are unable to handle the influx of traffic, which can cause a major bottleneck in the application delivery chain. Costco was among the first retailers to hit this performance roadblock.

In the graph below, the spikes in "Time to First Byte" (i.e. the time it took to receive the first byte of data from the primary URL) impacted page load time. This issue began Wednesday and continued throughout Cyber Monday.

Image: Line Charts Displaying Performance and Availability of Costco Website

While Costco's homepage was available, the search results page, product details page, and the shopping cart page slowed down considerably.

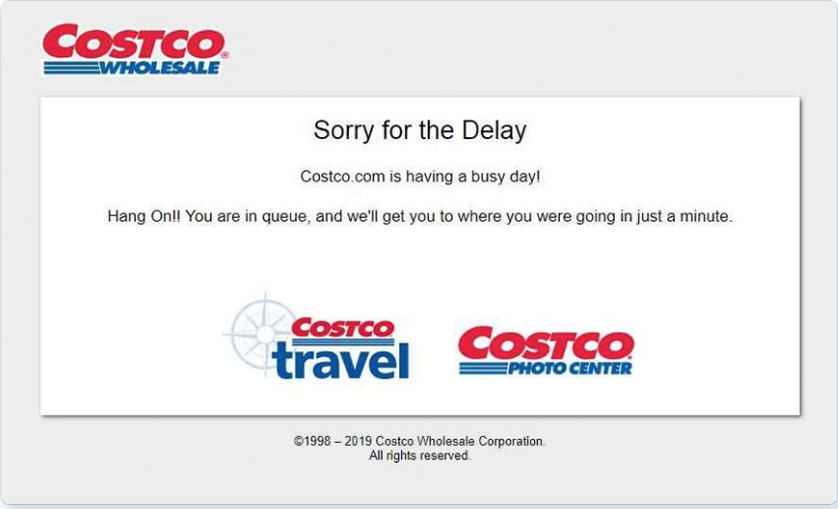


Image: Screenshot of Costco Message to Customers

H&M experienced performance issues that started around 5 AM EST on Thanksgiving Day. The scatterplot graph below highlights the slow performance on the product details page.

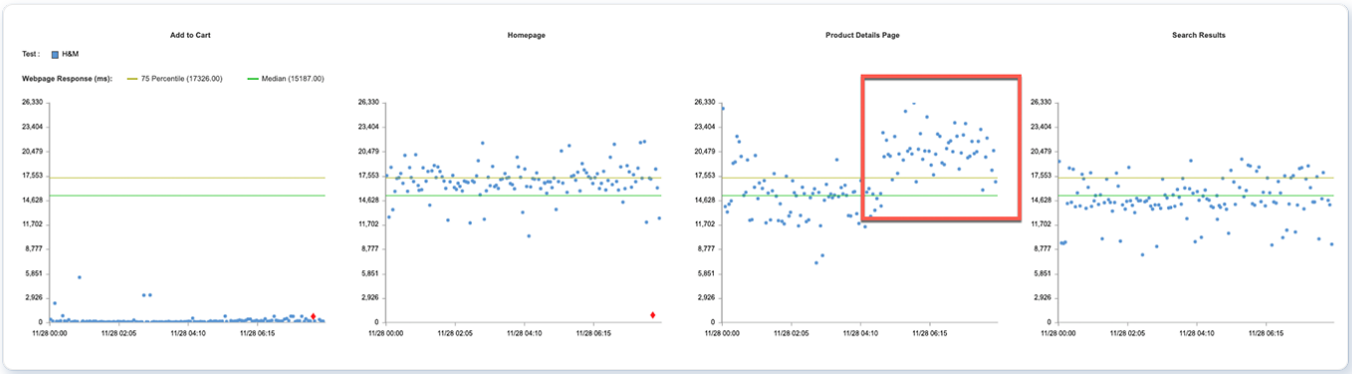


Image: Scatterplot Graph for H&M Product Details Page

The situation deteriorated for H&M who was soon unable to manage the high volume of incoming traffic. As a result, the retailer displayed a message to users that they were experiencing a temporary issue.

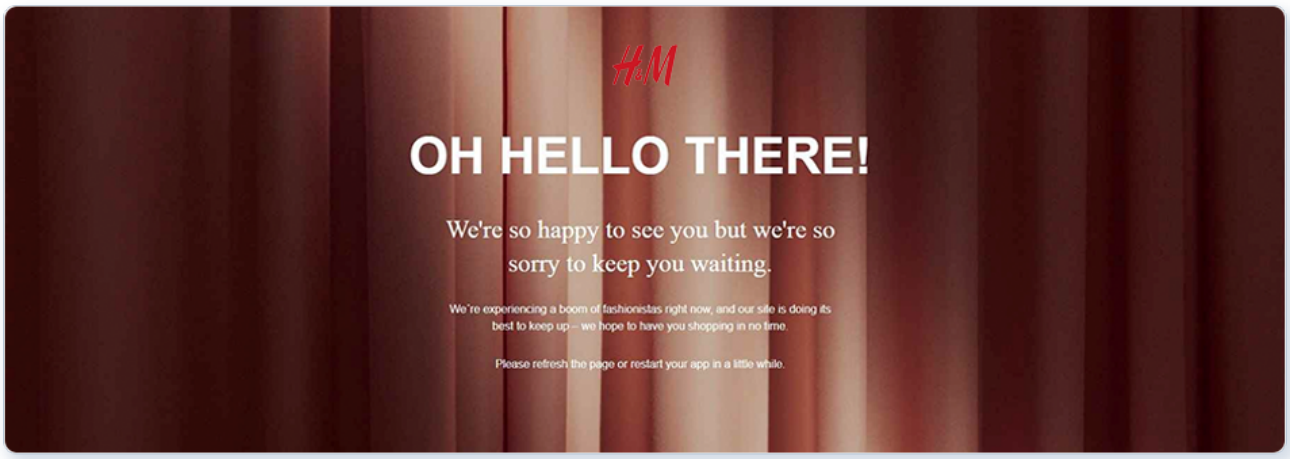


Image: H&M message displayed on Product Details Page

In addition, high wait times were detected for H&M's search results page, which prompted the following message to visitors:

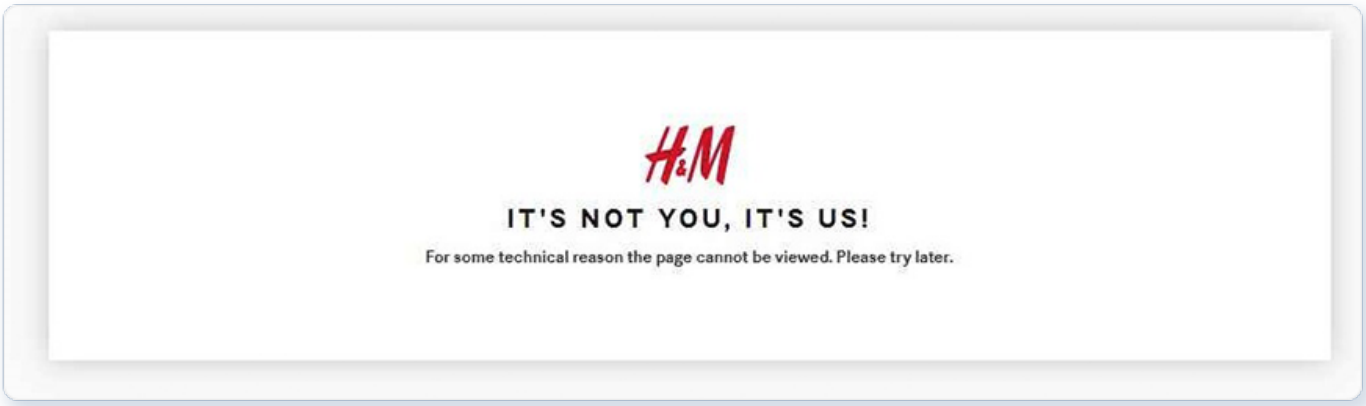


Image: H&M message displayed on Search Results Page

Interestingly, H&M experienced similar performance issues during Back Friday in 2017.

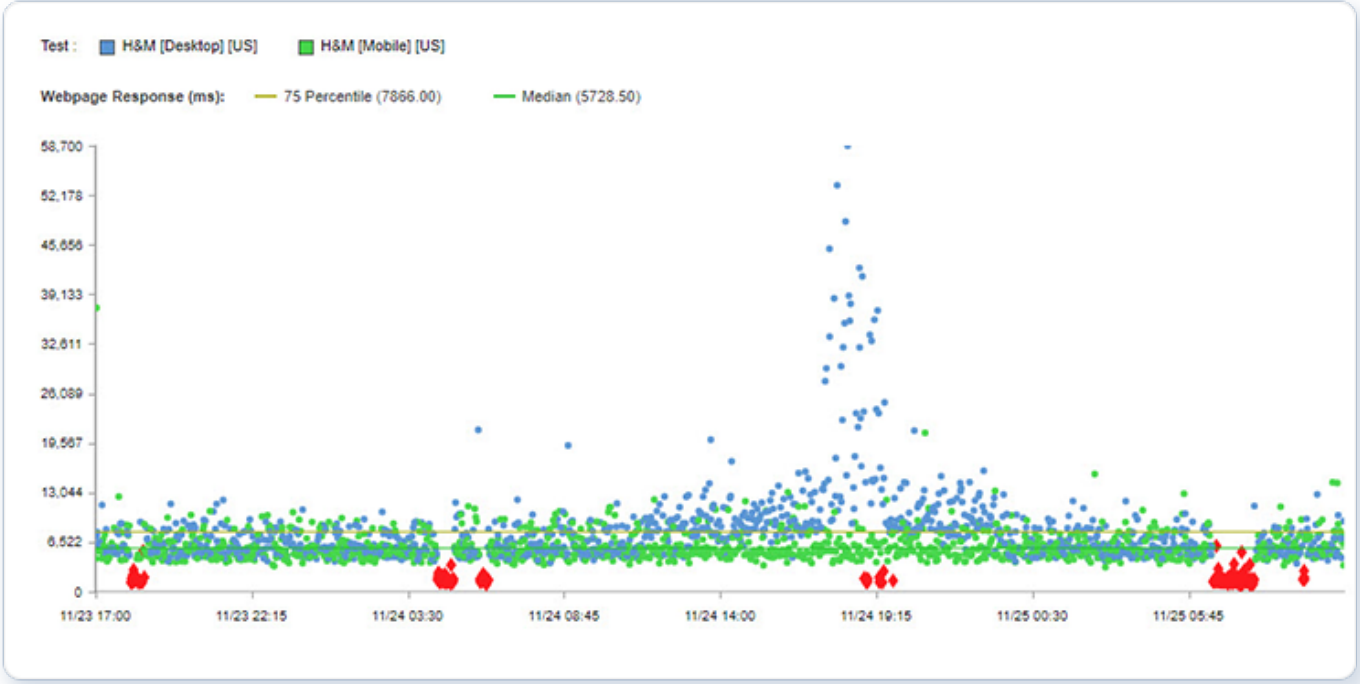


Image: Scatterplot Graph of H&M Performance from Black Friday 2017

Similar problems were found on Hobby Lobby's website. On Sunday, December 1 beginning around 1:00 am EST, Hobby Lobby's search page went down and remained unavailable for over three hours.

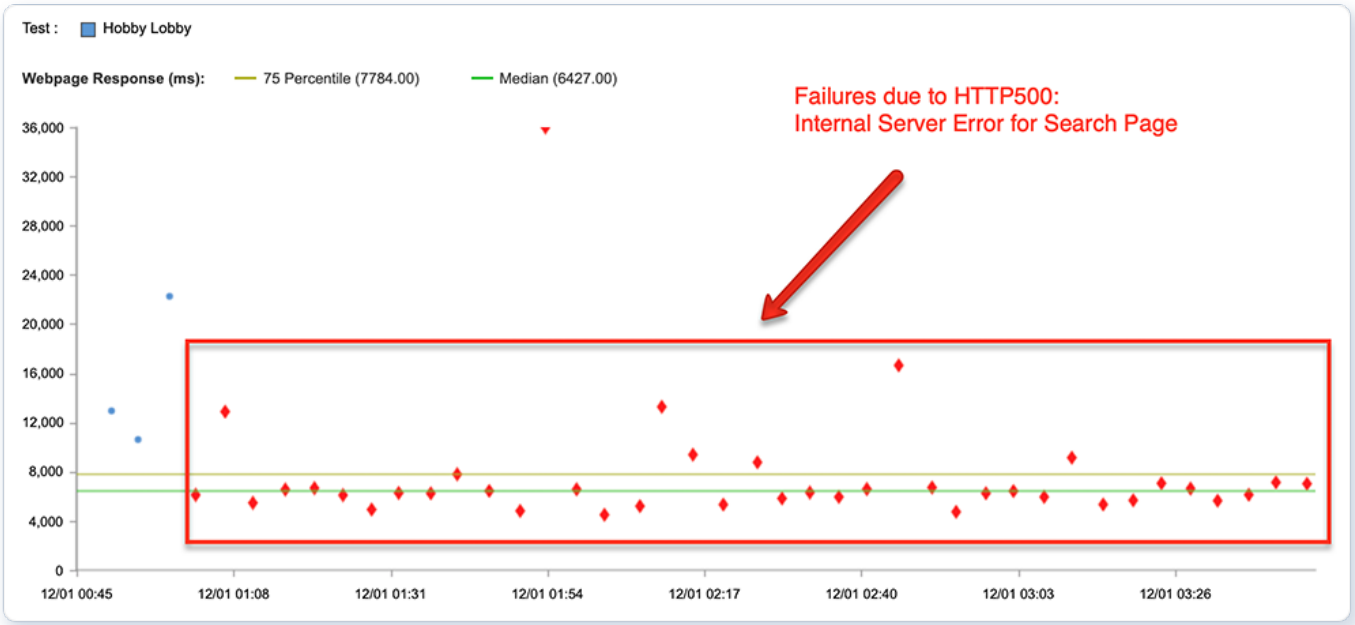


Image: Scatterplot Graph of Hobby Lobby's Search Page

The search page outage was caused by an internal server error and led to site visitors seeing HTTP 500 messages like the one below:

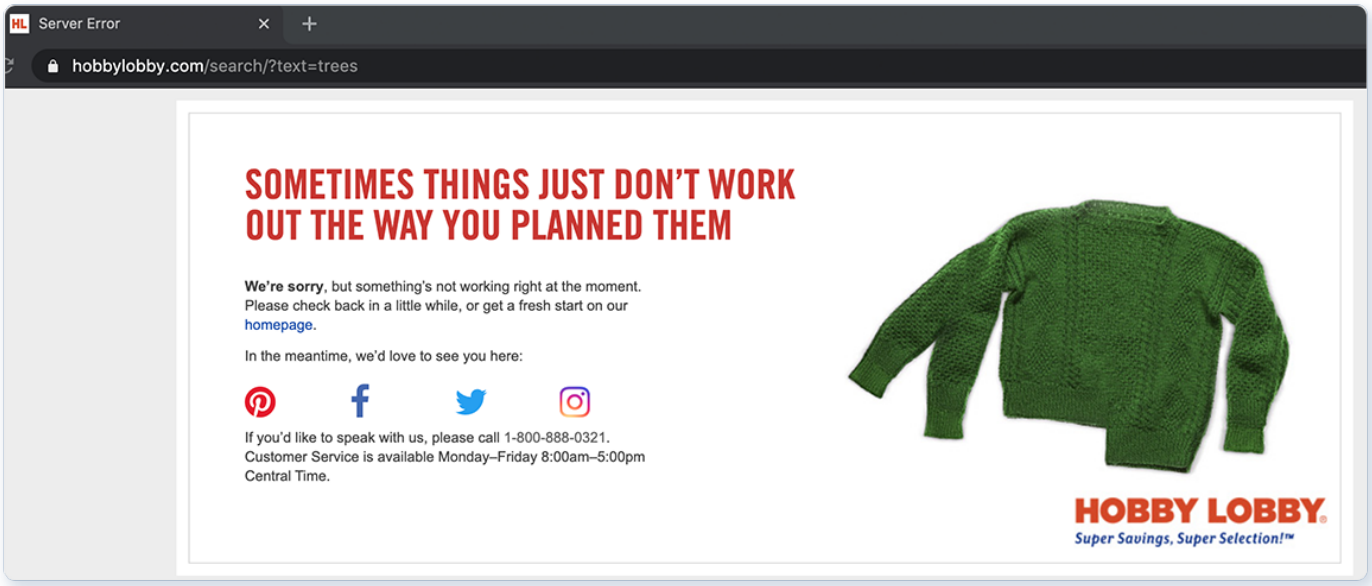


Image: Screenshot of Hobby Lobby Message About Performance Problems

Capacity issues contributed to performance problems for Costco, H&M, and Hobby Lobby throughout the holiday shopping weekend. Drilling into the data reveals the amount of downtime each retailer experienced because of capacity problems:

- Costco: 17 hours
- H&M: 10 hours
- Hobby Lobby: 4.3 hours

In the graphs below, we can see drops in availability correlate to high response and webpage response times. The slow performance of mission-critical conversion points in user journeys – search page, product detail page, add to cart, etc. – highlights the need to monitor more than binary availability measures to determine whether or not your site is reachable.

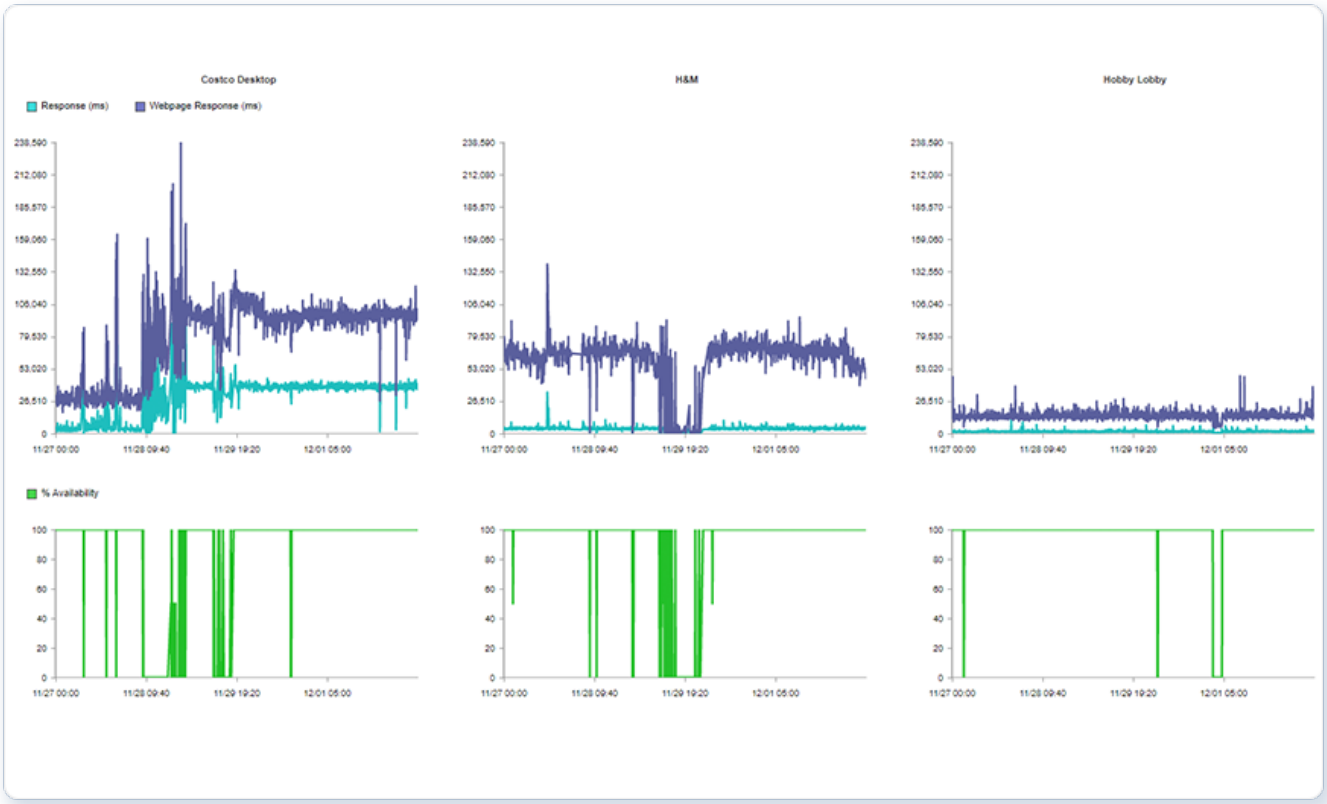


Image: Line Charts Displaying Downtime Measurement for Costco, H&M and Hobby Lobby

According to Business Insider, Costco may have lost as much as $11 million in sales due to downtime, but the company's decision to extend the length of sales promotion will likely recoup a large portion of that figure when users return to complete their purchases.

Connection issues proved to be another pain point for retailers. Forever21 was briefly impacted by high connect and wait times on Saturday, November 30. More specifically, Forever21's website was unable to load images and scripts served from their CDN, which impacted end users for approximately 15 minutes. The waterfall graph below shows the high connect time experienced by the website:

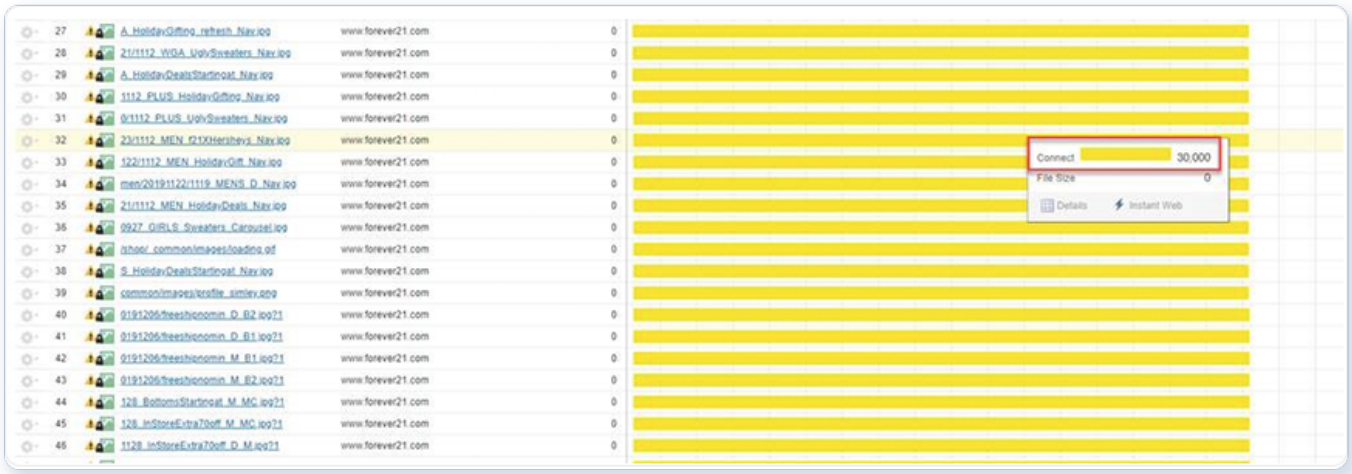


Image: Waterfall Graph Showing High Connect Times on Forever21's Website

Sephora experienced performance volatility from a specific host, a third-party community integration, on the page. The community platform used by Sephora experienced performance issues, which, in turn, slowed down the site.

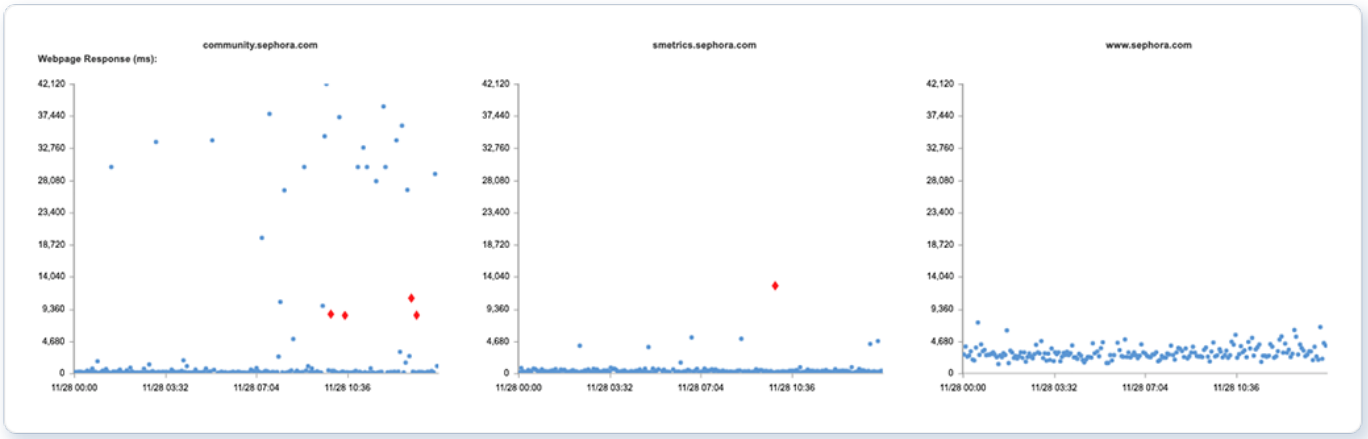


Image: Scatterplot Graph of Sephora's Homepage, Search, and Community Pages

On Thanksgiving Day, Home Depot's website slowed down when issues arose while fetching content from a particular host mapped to Google Cloud. The scatterplot below identifies issues with a single host:

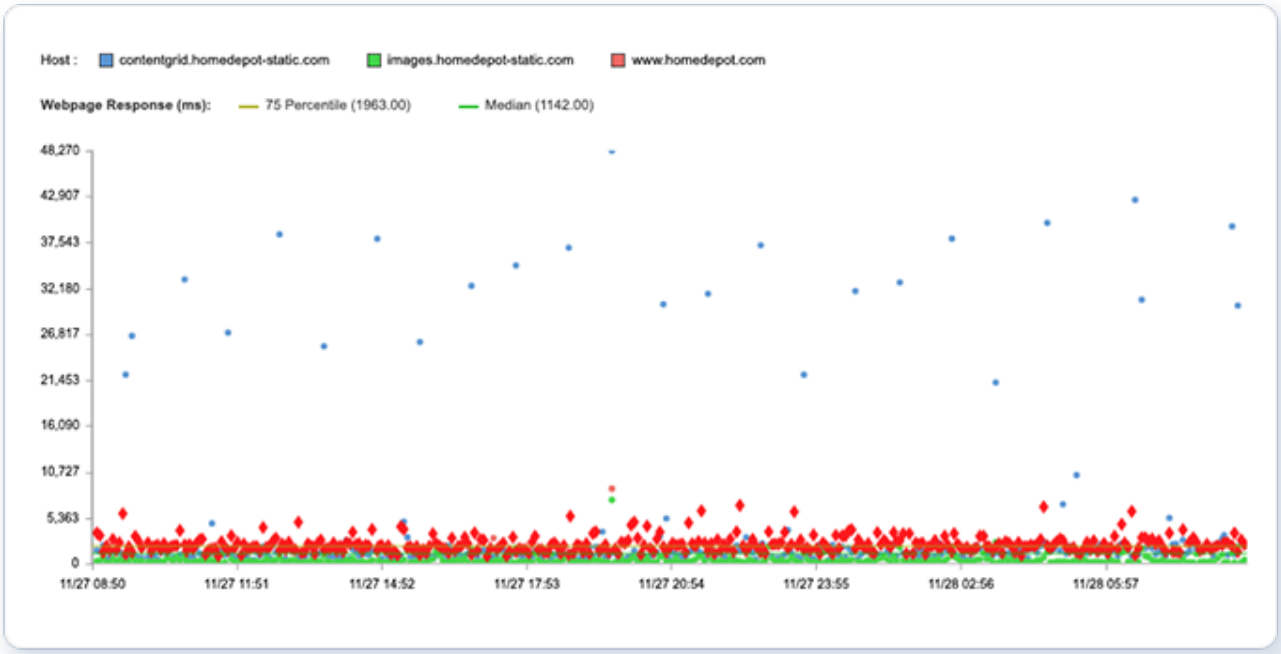


Image: Scatterplot Showing Slowdown Across Home Depot Website

In the waterfall chart below, we see a high wait time (in red) for each request, which impacted overall site performance.

Image: Waterfall Chart Showing High Wait Time (TTFB) on Home Depot Website

Overall the performance of popular online retailers was better this year when compared to the last few years. We did not detect any high-impact or widespread third-party outages, and no websites were completely down during the busiest digital sale period of the year.

One reason for the decline in third-party issues may relate to the fact that shoppers did not wait until Friday to place orders. The increase in website traffic on the Tuesday and Wednesday before Thanksgiving distributed traffic across several days allowing retailers to handle traffic without compromising end-user experience.

Top Sites by Metric: Time to First Byte (TTFB)

Color Scale		
	Green	Red
25th	50	100
50th	200	400
95th	500	800

Time to First Byte is a key indicator that measures the time taken to download the first byte of the base HTML of the home page. This is usually not cached at the CDN edge. As such, this metric is a good indicator of origin stability. The chart below compares different percentiles and gives a snapshot of application health, with **good performance indicated in green** and **performance degradation indicated in red**.

Website	25 Percentile	Median	95 Percentile	% of Delta between 50th & 95th
Ace Hardware	93	125	387	310%
Amazon	65	99.5	313	315%
Apple	10	15	72	480%
AT&T	503	601	895	149%
Barnes and Noble	29	66.5	500	752%
Bath & Body Works	87	119	200	168%
Best Buy	285	397	918	231%
Cars (Desktop)	31	47.5	456	960%
Costco (Desktop)	22	29	198	683%
CVS	45	62	202	326%
eBay (Desktop)	91	114.5	262	229%
Etsy	351	370	513	139%
GameStop USA	218	269	469	174%
Gap	33	65	319	491%
H&M	19	35	382	1091%
Hobby Lobby	57	96	284	296%
Home Depot	76	120	369	308%
Home Goods	351	487	1,431.00	294%
HSN	148	176.5	600	340%
IKEA	23	56	366	654%
J. C. Penny	23	33	176	533%
J. Crew (Desktop)	29	40	245	613%
Jet	355	456.5	1,349.00	296%
Kohl's (Desktop)	92	122	483	396%
Macy's (Desktop)	39	108	555	514%
Menards	115	182.5	683	374%
Michael's Stores	228	275	491	179%
Neiman Marcus	388	431	1,080.00	251%
Net-A-Porter	274	372	996	268%
Newegg (Desktop)	65	119	567	476%
Nordstrom	306	349	751	215%
Office Max	164	247	560	227%
Overstock (Desktop)	197	224	507	226%
QVC	103	156.5	791	505%
Sears	586	735	1,212.00	165%
Sephora	42	74	305	412%
Shop.com	31	44.5	169	380%
Staples	11	18	156	867%
Steam Store	291	510	850	167%
Toys R Us	289	334.5	653	195%
Verizon	46	63	173	275%
Victoria's Secret	31	45	220	489%
Wal-Mart	227	272	550	202%
Walgreen's	256	319.5	751	235%
Williams-Sonoma	219	365	1,182.00	324%
Zappos	236	296	643	217%

Top 50 Sites by Metric: Document Complete

The **Document Complete** metric gives an accurate measurement of the time taken to load enough page elements, allowing the user to interact with the page. A lower Document Complete value (measured here in milliseconds) is a good indicator of end user experience.

	Website	Document Complete (ms)
1	Amazon.com Inc.	711.52
2	Bauble Bar	1,029.68
3	Spreadshirt Inc.	1,122.41
4	Alibris Inc.	1,140.88
5	J. Hilburn Inc.	1,166.45
6	Instawares Holding Co. LLC	1,203.39
7	Starbucks Corp.	1,375.83
8	Article	1,492.39
9	L Brands	1,535.94
10	B&H Photo-Video-Pro Audio	1,577.82
11	LivingSocial	1,580.82
12	RockAuto LLC	1,604.45
13	eSalon	1,607.61
14	RealTruck Inc.	1,663.65
15	Apple	1,685.40
16	DSW Inc.	1,702.61
17	CafePress.com	1,704.93
18	MidwayUSA Inc.	1,726.76
19	Bluenile	1,811.21
20	Online Stores Inc.	1,822.88
21	AppliancePartsPros.com Inc.	1,888.03
22	U.S. Auto Parts Network Inc.	1,897.13
23	Coastal Contacts Inc.	1,904.05
24	FragranceNet.com Inc.	1,907.63
25	Shindigz	1,917.76

	Website	Document Complete (ms)
26	American Girl LLC	1,955.96
27	Buy Costumes	1,965.10
28	Gap Inc. Direct	2,019.64
29	Toys 'R' Us Inc.	2,030.50
30	Staples Inc.	2,042. 44
31	Craftsy	2,051.18
32	HVACStores.com Inc.	2,052.49
33	Kay	2,067.42
34	RueLaLa.com	2,076.16
35	BackCountry	2,095.84
36	The Gymboree Corp.	2,175.41
37	Overstock.com Inc.	2,179.27
38	Microsoft Store	2,184.87
39	1800 Contacts	2,197.13
40	Jockey International Inc.	2,208.78
41	Turn5 Inc.	2,215.54
42	Tennis Warehouse	2,240.15
43	Brookstone Inc.	2,249.06
44	OneCall.com	2,266.07
45	Zumiez Inc.	2,300.53
46	The Discovery Channel Store Inc.	2,308.44
47	PropertyRoom.com Inc.	2,313.18
48	Power Equipment Direct	2,329.54
49	Dexclusive.com	2,329.71
50	Smarthome Inc.	2362.42

Top 50 Sites by Metric: Total Downloaded Bytes

The **Total Downloaded Bytes** metric measures the page size. There is a more or less a direct correlation between page size and page speed. As such, this metric gives you a snapshot of page weight, and whether the size has an impact on the overall performance webpage.

	Website	Average Total Downloaded Bytes (mb)
1	Amazon.com	0.23
2	RockAuto LLC	0.31
3	AppliancePartsPros.com	0.65
4	Starbucks	0.73
5	eCampus.com	0.75
6	LivingSocial	0.78
7	Crutchfield Corp.	0.80
8	Instawares	0.83
9	Tennis Warehouse	0.83
10	YesAsia Holdings	0.84
11	J. Hilburn Inc.	0.85
12	Spreadshirt	0.87
13	eImprovement	0.88
14	American Girl	0.88
15	Brookstone	0.94
16	Microsoft Store	0.97
17	Buy Costumes	0.98
18	ShopJimmy.com	0.99
19	RepairClinic.com	0.99
20	Bluenile	1.00
21	Burberry	1.02
22	Sheet Music Plus	1.04
23	Monkey Sports	1.05
24	Sweetwater.com	1.05
25	Entertainment Earth Inc.	1.05

	Website	Average Total Downloaded Bytes (mb)
26	Organize-It	1.06
27	Stamps.com Inc.	1.07
28	K&L Wine Merchants	1.08
29	Google Play	1.17
30	Dell Inc.	1.19
31	Tech for Less	1.20
32	Hallmark	1.22
33	Thrive Market	1.23
34	NBTY	1.24
35	Textbooks.com	1.24
36	MidwayUSA Inc.	1.25
37	OfficeSupply.com	1.25
38	L'Oréal Group	1.28
39	Better World Books	1.28
40	Diamond Nexus	1.28
41	SuperBiiz.com	1.30
42	Power Equipment Direct	1.30
43	Furniture.com Inc.	1.30
44	MSC Direct	1.31
45	Performance Inc.	1.32
46	CustomInk	1.35
47	OpticsPlanet	1.37
48	Palmetto State Armory	1.39
49	Fry's Electronics	1.39
50	SearsOutlet	1.41

Top 20 Apparel and Accessories Websites

Ranked by Document Complete

Website	Time To First Byte (ms)	**Document Complete (ms)**	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
Spreadshirt	69.27	**1122.41**	14	77	0.87	100
J. Hilburn	297.67	**1166.45**	16	38	0.85	100
L Brands	300.68	**1535.94**	34	115	2.63	100
Gap	165.04	**2019.64**	105	353	2.23	100
Jockey International	506.08	**2208.78**	60	165	2.37	100
Zumiez	468.79	**2300.53**	17	85	3.05	99
The Discovery Channel Store	383.74	**2308.44**	38	128	2.50	100
Tilly's Inc.	234.32	**2422.21**	32	113	6.09	100
The Men's Wearhouse	130.15	**2459.36**	65	159	2.01	100
Macy’s	317.02	**2480.78**	72	194	1.57	100
Mason Companies	138.66	**2519.48**	32	121	2.18	97
Bluefly	587.88	**2652.57**	23	95	2.66	100
L.L. Bean	779.42	**2666.64**	38	129	3.00	100
Levi Strauss	308.89	**2737.44**	83	231	2.54	98
Destination Maternity	1027.87	**2742.22**	65	178	2.02	100
Beyond the Rack	587.9	**2829.41**	17	66	1.47	100
Indochino	648.86	**2831**	55	149	3.03	100
Adidas	263.71	**2838.84**	8	60	1.85	100
FootSmart	413.16	**2845.59**	24	161	1.64	100
LuLu's Fashion Lounge	246.58	**2875.65**	48	183	1.83	93

Top 10 Consumer Electronic Website Sites

Ranked by Document Complete

Website	Time To First Byte (ms)	**Document Complete (ms)**	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
B&H Photo Video	665.65	**1577.82**	36	162	3.55	100
Apple	60.31	**1685.4**	3	85	1.59	100
Microsoft Store	540.59	**2184.87**	29	90	0.97	100
Brookstone	359.27	**2249.06**	18	68	0.94	100
Systemax	133.1	**2296.78**	44	122	1.76	99
Lenovo	288.19	**2389.79**	60	181	1.59	100
hhgregg Appliances	788.66	**2735.74**	15	73	1.42	100
eForCity	106.57	**2791.08**	10	67	2.29	100
PC Mall	407.54	**2800.14**	34	139	1.99	100
Google Play	162.87	**2974.57**	11	52	1.17	100

Top 10 Flowers, Gifts, and Jewelry Websites

Ranked by Document Complete

Website	Time To First Byte (ms)	**Document Complete (ms)**	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
Bauble Bar	82.14	**1029.68**	42	92	2.31	100
Blue Nile	336.32	**1811.21**	26	105	1.00	100
Kay	186.3	**2067.42**	73	215	2.39	100
FTD	186.41	**2454.61**	50	153	2.64	100
Potpourri	769.23	**2905.24**	21	65	1.75	91
Diamond Nexus	168.26	**2916.61**	35	95	1.28	100
Shutterfly	479.74	**3114.74**	101	345	2.29	100
Ritani	82.72	**3294.10**	26	83	1.68	100
Tiffany's	129.12	**3411.16**	76	199	2.26	100
Edible Arrangements	478.92	**3516.79**	55	143	2.90	100

Top 10 Food and Beverage Websites

Ranked by Document Complete

Website	Time To First Byte (ms)	**Document Complete (ms)**	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
Starbucks	323.27	**1375.83**	11	29	0.73	100
Wine.com	727.86	**2373.07**	29	143	2.77	100
K&L Wine Merchants	786.51	**2555.44**	12	66	1.08	100
JJBuckley.com	600.29	**3083.74**	27	89	5.03	100
Wine Library	981.62	**3134.18**	24	65	1.71	100
King Arthur Flour	220.21	**3229.25**	41	108	5.36	100
Home Chef	348.51	**3303.92**	85	271	8.34	100
Keurig Green Mountain	396.89	**3659.13**	71	218	4.32	100
Colony Brands	526.21	**3674.84**	70	198	2.56	100
Blue Apron	84.8	**4046.87**	55	142	3.98	100

Top 10 Hardware and Home Improvement

Ranked by Document Complete

Website	Time To First Byte (ms)	**Document Complete (ms)**	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
AppliancePartsPros.com	147.46	**1888.03**	19	63	0.65	100
HVACStores.com	190.82	**2052.49**	26	110	1.50	100
Power Equipment Direct	167.11	**2329.54**	31	134	1.30	100
RepairClinic.com	169.89	**2771.45**	27	58	0.99	100
SmartSign.com	551.75	**2961.13**	21	159	2.67	100
National Builder Supply	544.49	**3239.98**	26	103	2.51	100
Home Depot	298.81	**3310.96**	58	279	6.55	100
IS3	379.21	**3311.44**	30	107	1.51	100
Signature Hardware	225.86	**3978.32**	89	222	2.82	100
Vintage Tub & Bath	328.28	**4076.25**	34	202	3.06	100

Top 10 Health and Beauty Website

Ranked by Document Complete

Website	Time To First Byte (ms)	**Document Complete (ms)**	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
eSalon	291.78	**1607.61**	30	141	3.56	100
Coastal Contacts	337.91	**1904.05**	25	78	2.90	100
FragranceNet.com	561.92	**1907.63**	35	160	2.33	100
1-800-Contacts	560.27	**2197.13**	55	176	1.67	100
Ulta Beauty	191.93	**2448.88**	54	180	2.81	100
Warby Parker	375.06	**2514.33**	82	199	2.51	100
Nutrisystem	400.74	**2702.14**	93	221	1.67	99
Memebox	205.07	**2841.2**	32	120	3.64	100
Amway Global	328.34	**2909.39**	11	69	4.52	100
Birchbox	214.31	**3070.88**	57	204	3.29	100

Top 10 Houseware and Home Furnishings

Ranked by Document Complete

Website	Time To First Byte (ms)	**Document Complete (ms)**	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
Article	224.85	**1492.39**	40	103	1.65	100
Wayfair	333.93	**2377.06**	51	278	3.84	100
UnbeatableSale.com	498.99	**2429.48**	14	159	3.23	99
ShopLadder	379.69	**2611.83**	24	80	1.91	100
Living Spaces	204.12	**2720.17**	48	236	3.80	100
Replacements	336.89	**2907.01**	26	104	2.43	100
IKEA	284.64	**3233.14**	39	154	2.39	100
Bellacor	828.89	**3290.3**	26	155	2.78	100
Williams-Sonoma	593.42	**3353.59**	70	311	10.72	100
Rugs Direct	618.62	**3470.87**	30	95	2.62	100

Top 10 Mass Merchant Websites

Ranked by Document Complete

Website	Time To First Byte (ms)	Document Complete (ms)	# Hosts	# Items (Total)	Avg Total Downloaded Bytes (MB)	% Availability
Amazon.com	112.92	**711.52**	3	12	0.23	100
Groupon	500.55	**1498.49**	35	114	1.31	100
LivingSocial	562.35	**1580.82**	14	80	0.78	100
Online Stores	464.31	**1822.88**	21	147	1.73	100
Overstock	315.66	**2179.27**	48	144	1.60	100
Quantum Networks	553.05	**2403.75**	16	151	1.43	100
BuyOnlineNow	175.85	**2427.77**	15	119	1.41	100
Etsy	494.31	**3067.29**	31	106	1.59	100
Touch of Class	604.76	**3283.42**	19	81	2.62	100
Walmart	331.67	**3650.94**	46	160	2.01	100

Top 10 Specialty Websites (Includes Office Supplies and Toys and Hobbies Sites)

Ranked by Document Complete

Website	Time To First Byte (ms)	Document Complete (ms)	# Hosts	# Items (Total)	Avg Total Downloaded Bytes	% Availability
American Girl	152.05	**1955.96**	19	57	0.88	100
Buy Costumes	374.19	**1965.1**	23	48	0.98	100
Toys	434.9	**2030.5**	11	62	2.29	100
Staples	176.4	**2042.44**	87	212	2.49	100
Craftsy	410.79	**2051.18**	37	93	1.67	100
Stamps.com	381.09	**2601.71**	20	98	1.07	100
Entertainment Earth	536.89	**2695.08**	18	121	1.05	100
Gamefly	343.95	**3042.34**	31	81	1.56	100
Levenger	251.17	**3047.86**	32	90	2.42	100
OfficeSupply.com	85.62	**3195.4**	27	94	1.25	100

Top 10 Sporting Goods Websites

Ranked by Document Complete

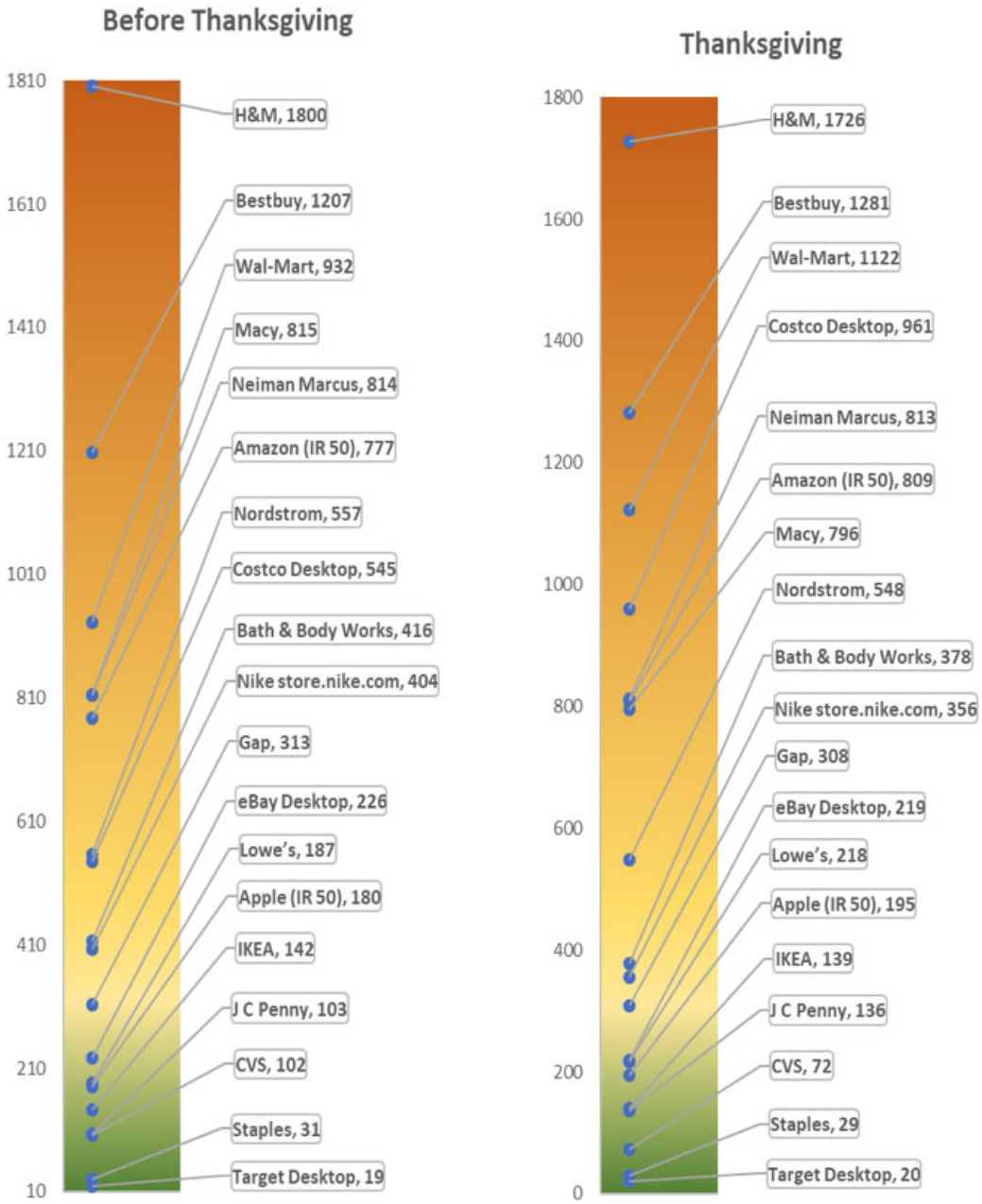
Website	Time To First Byte (ms)	Document Complete (ms)	# Hosts	# Items (Total)	Avg Total Downloaded Bytes	% Availability
BackCountry	176.4	**2095.84**	50	166	2.08	100
Tennis Warehouse	457.22	**2240.15**	20	90	0.83	100
Dexclusive.com	480.35	**2329.71**	31	74	1.55	100
Dick's Sporting Good	101.28	**2588.57**	73	195	2.09	100
OpticsPlanet	103.26	**3074.77**	26	84	1.37	100
National Football League	284.01	**3217.33**	23	129	3.20	100
Gaiam	368.04	**3277.59**	61	152	2.91	100
National Hockey League	381.49	**3319.02**	17	124	3.54	100
SwimOutlet.com	252.81	**3319.21**	45	147	1.97	97
Golfsmith International	589.14	**3334.93**	57	145	1.97	99

Top 20 Performers – Breakdown by Page

We monitored the search and product details for 50 of the popular retailers in the top 500 and here is a page-wise breakdown of how they performed during the week broken down into the top 20 sites.

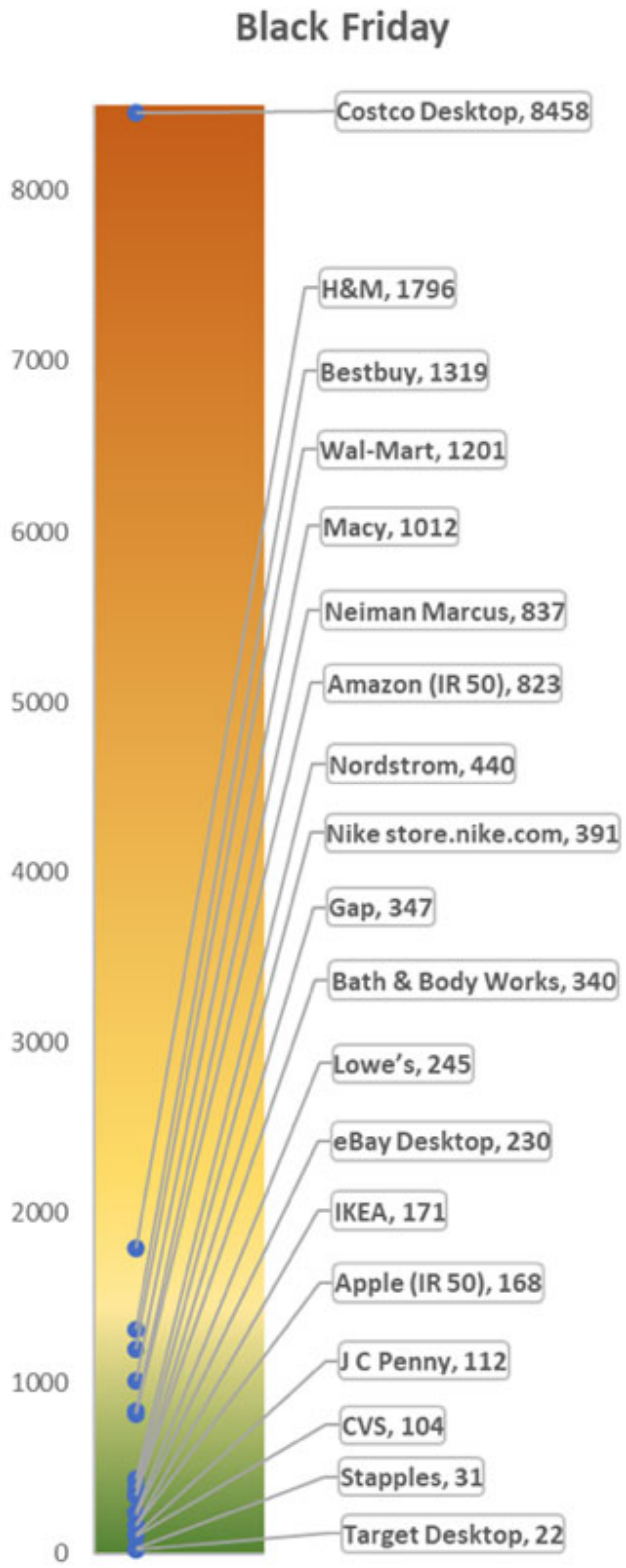
PRODUCT SEARCH PAGE

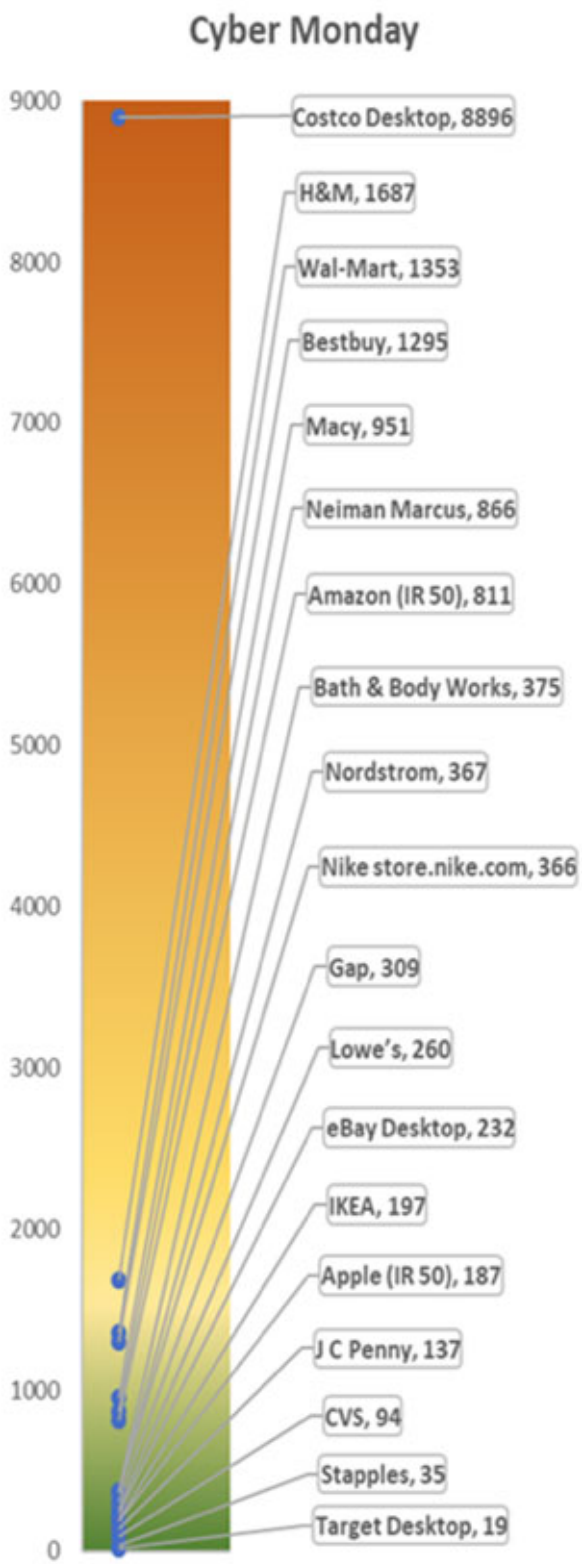
Wait Time (in ms) | Statistical Value: Geometric Mean



PRODUCT SEARCH PAGE

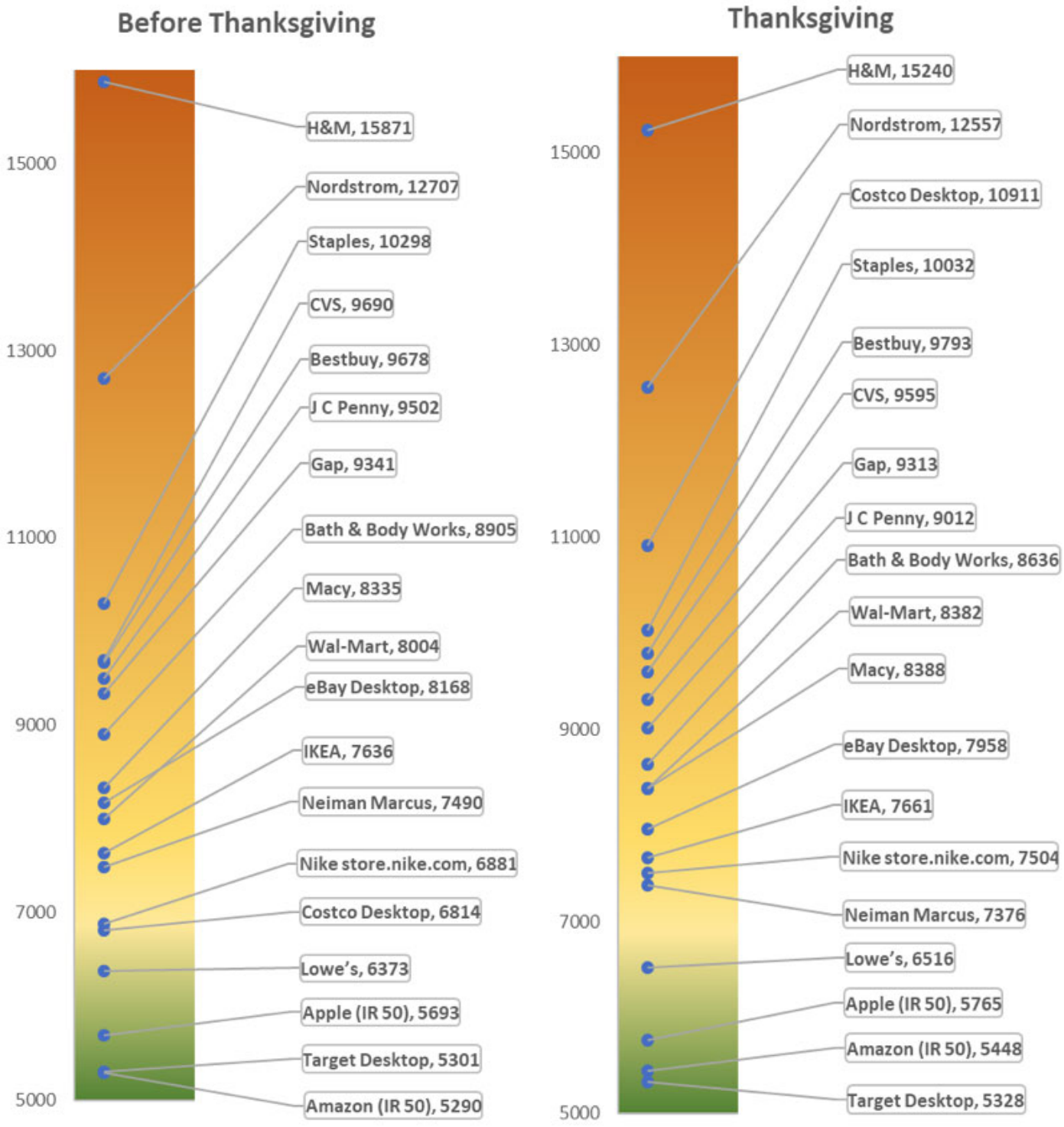
Wait Time (in ms) | Statistical Value: Geometric Mean





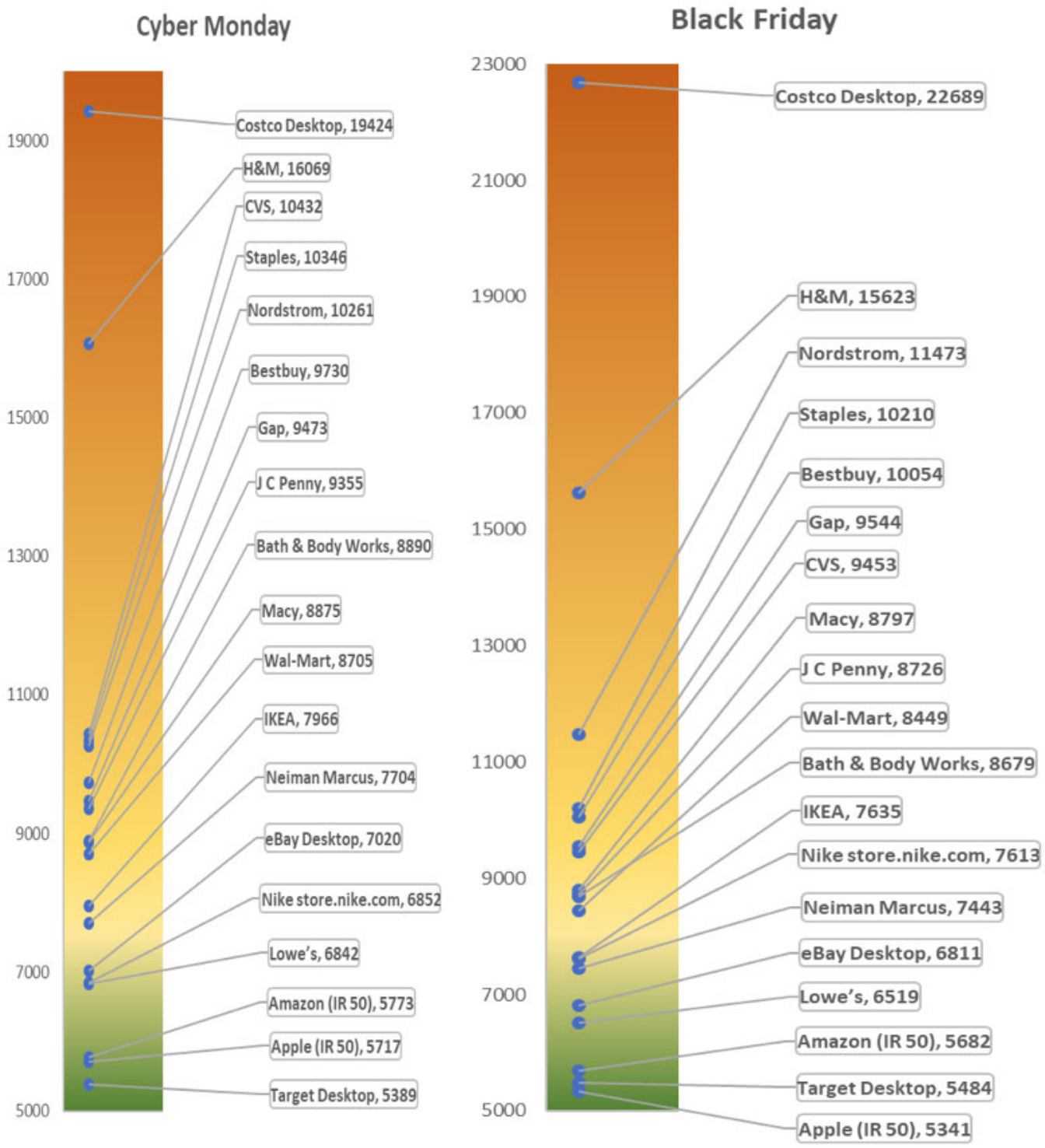
PRODUCT SEARCH PAGE

Webpage Response (in ms) | Statistical Value: Geometric Mean



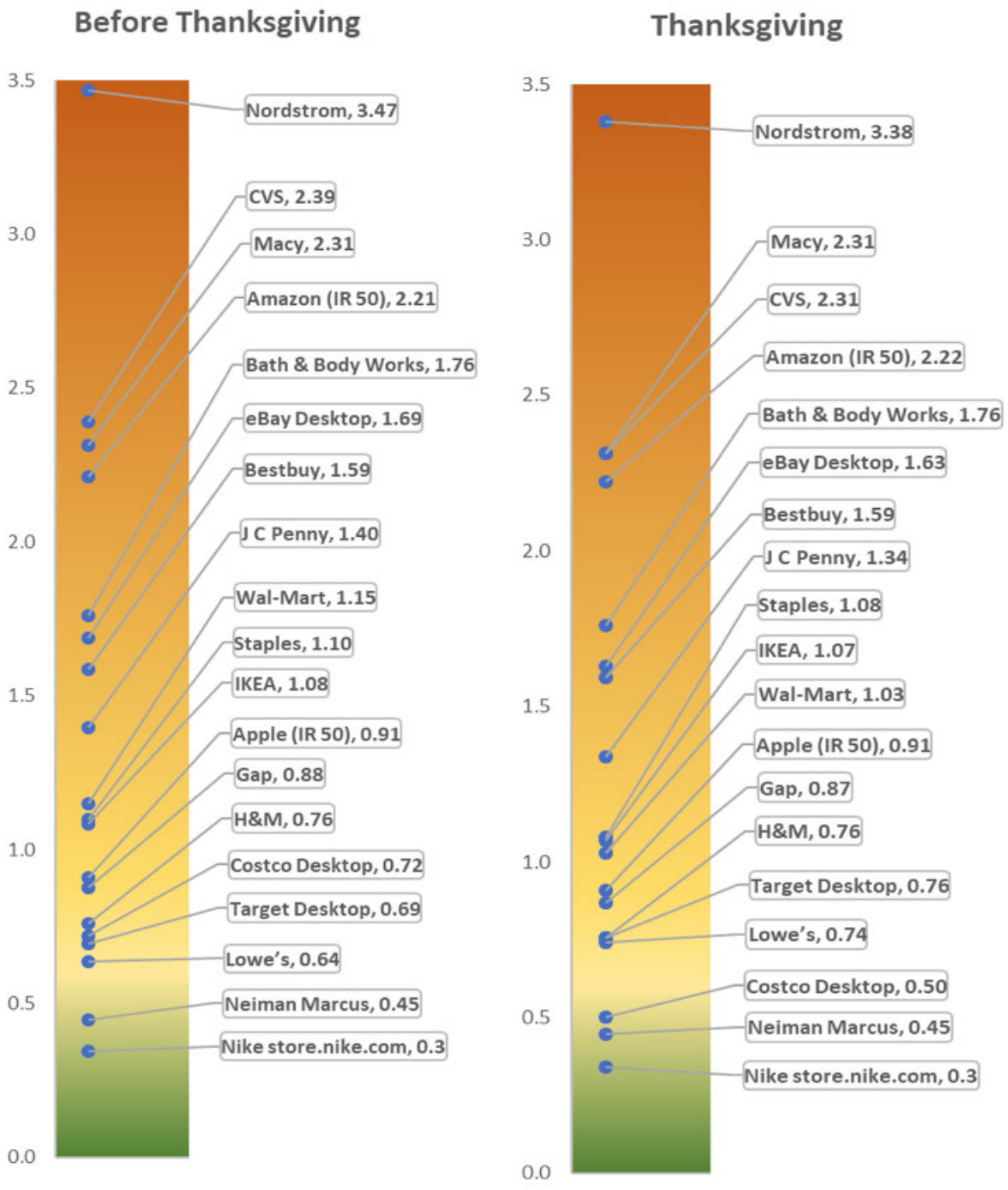
PRODUCT SEARCH PAGE

Webpage Response (in ms) | Statistical Value: Geometric Mean



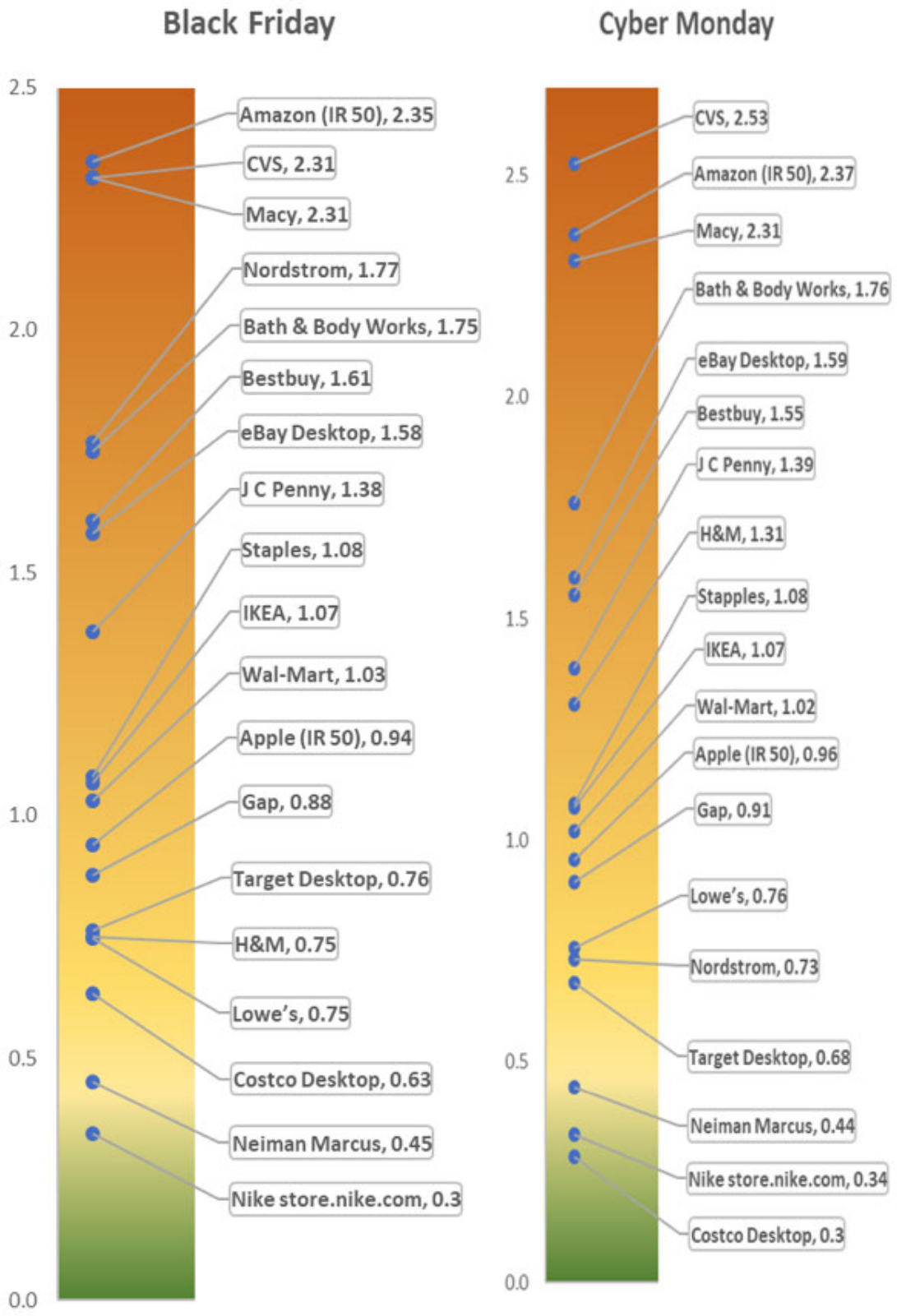
PRODUCT SEARCH PAGE

Page Size (in MB) | Statistical Value: Geometric Mean



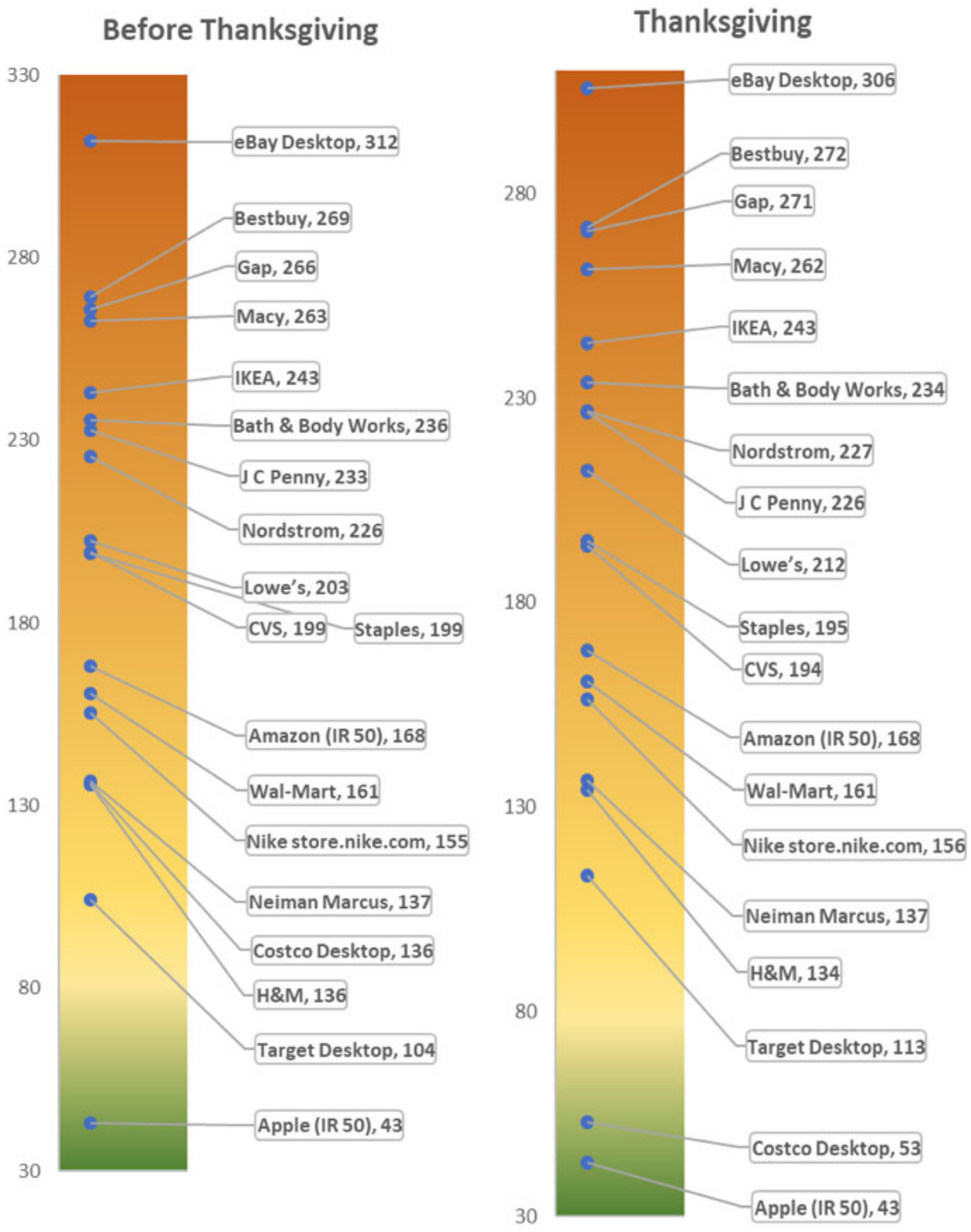
PRODUCT SEARCH PAGE

Page Size (in MB) | Statistical Value: Geometric Mean



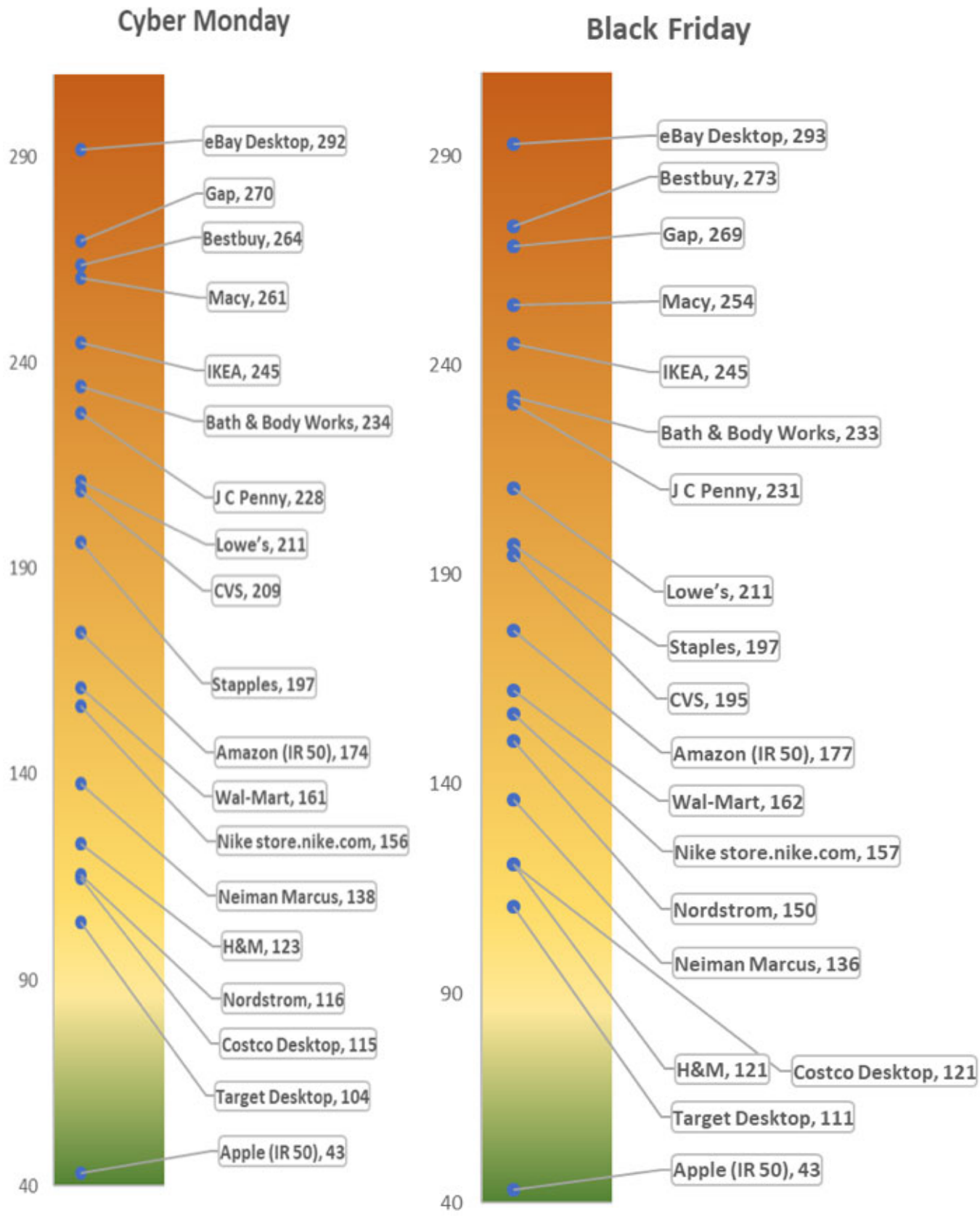
PRODUCT SEARCH PAGE

Number of Items | Statistical Value: Geometric Mean



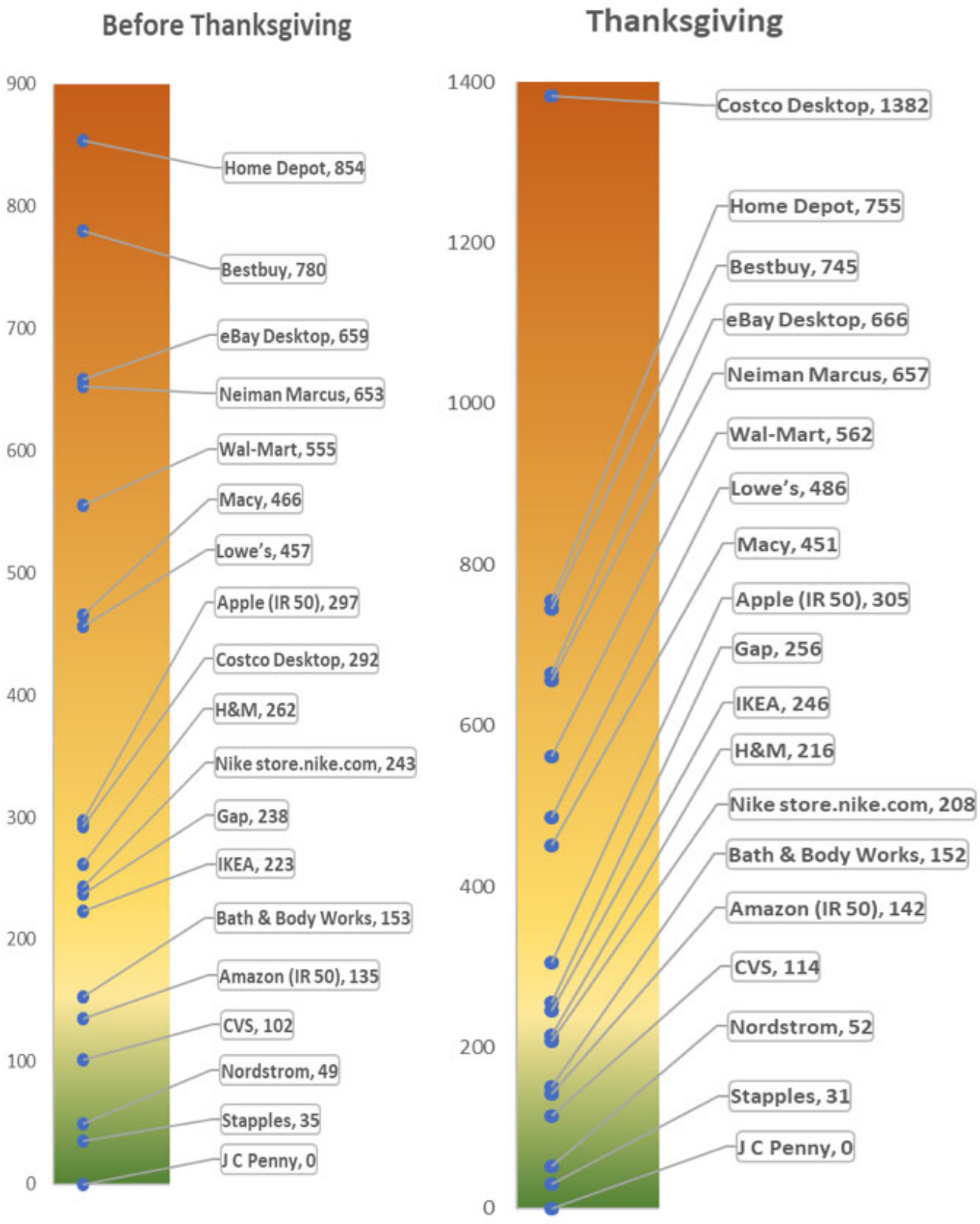
PRODUCT SEARCH PAGE

Number of Items | Statistical Value: Geometric Mean



PRODUCT DETAIL PAGE

Wait Time (in ms) | Statistical Value: Geometric Mean



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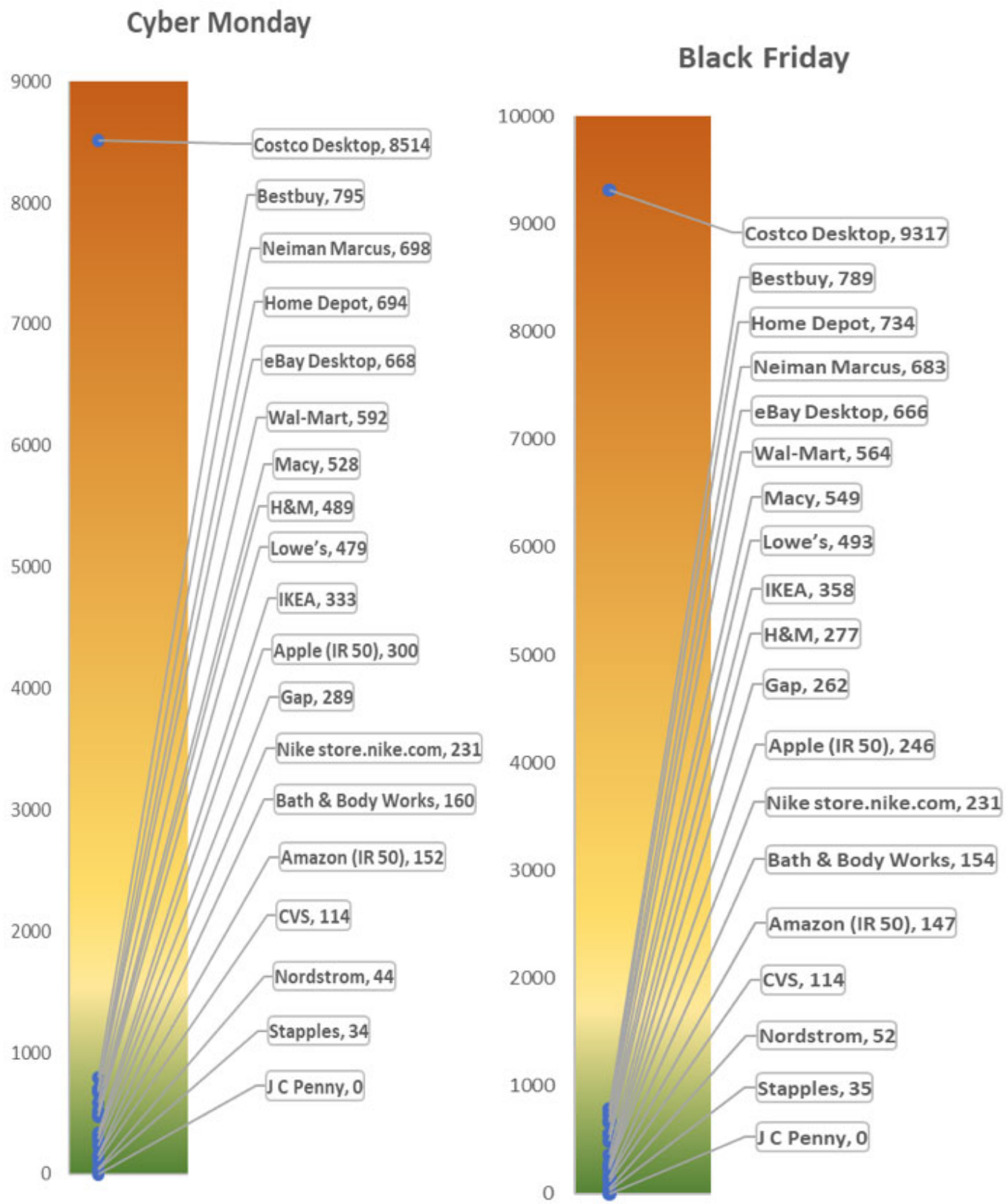
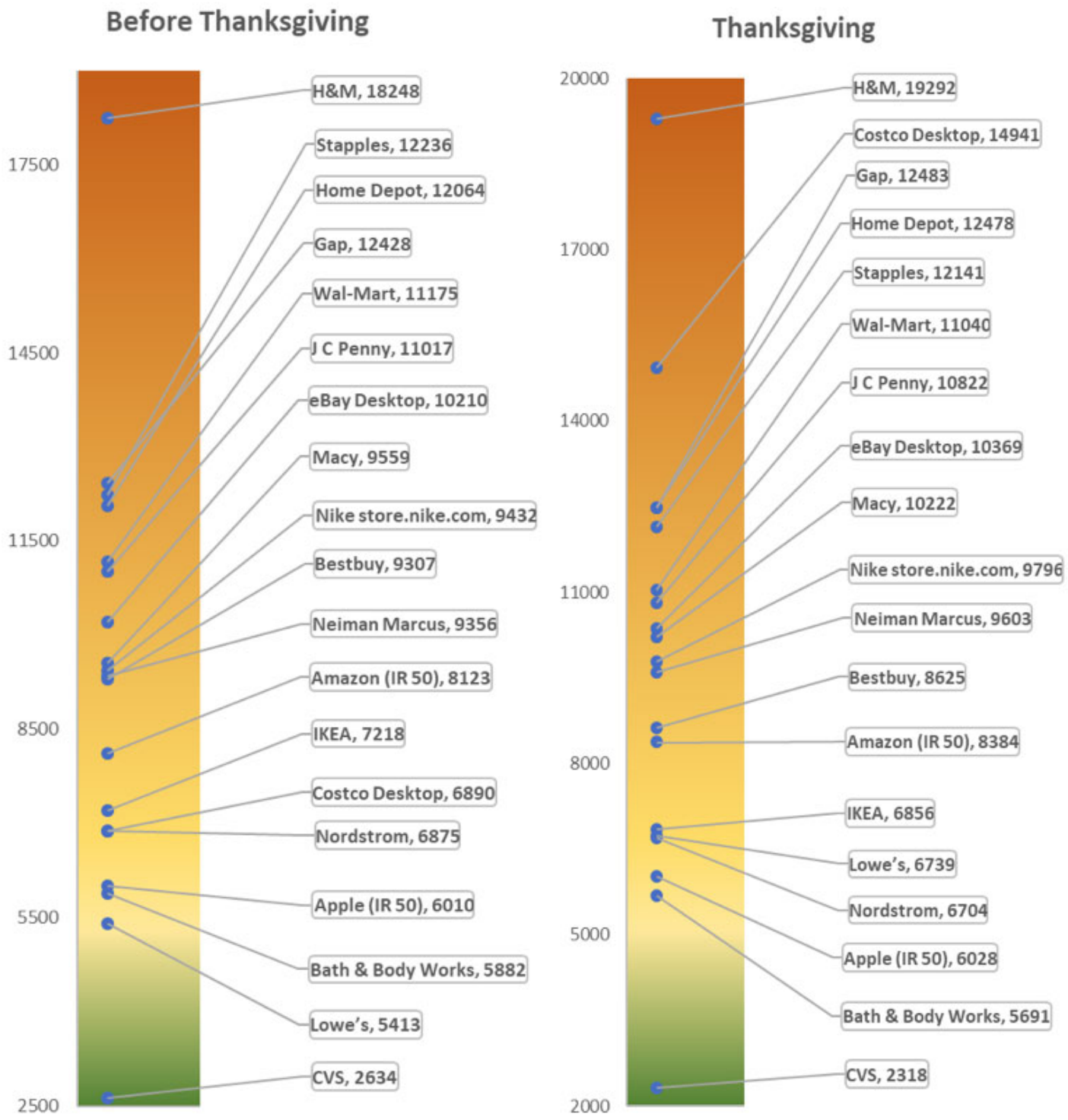


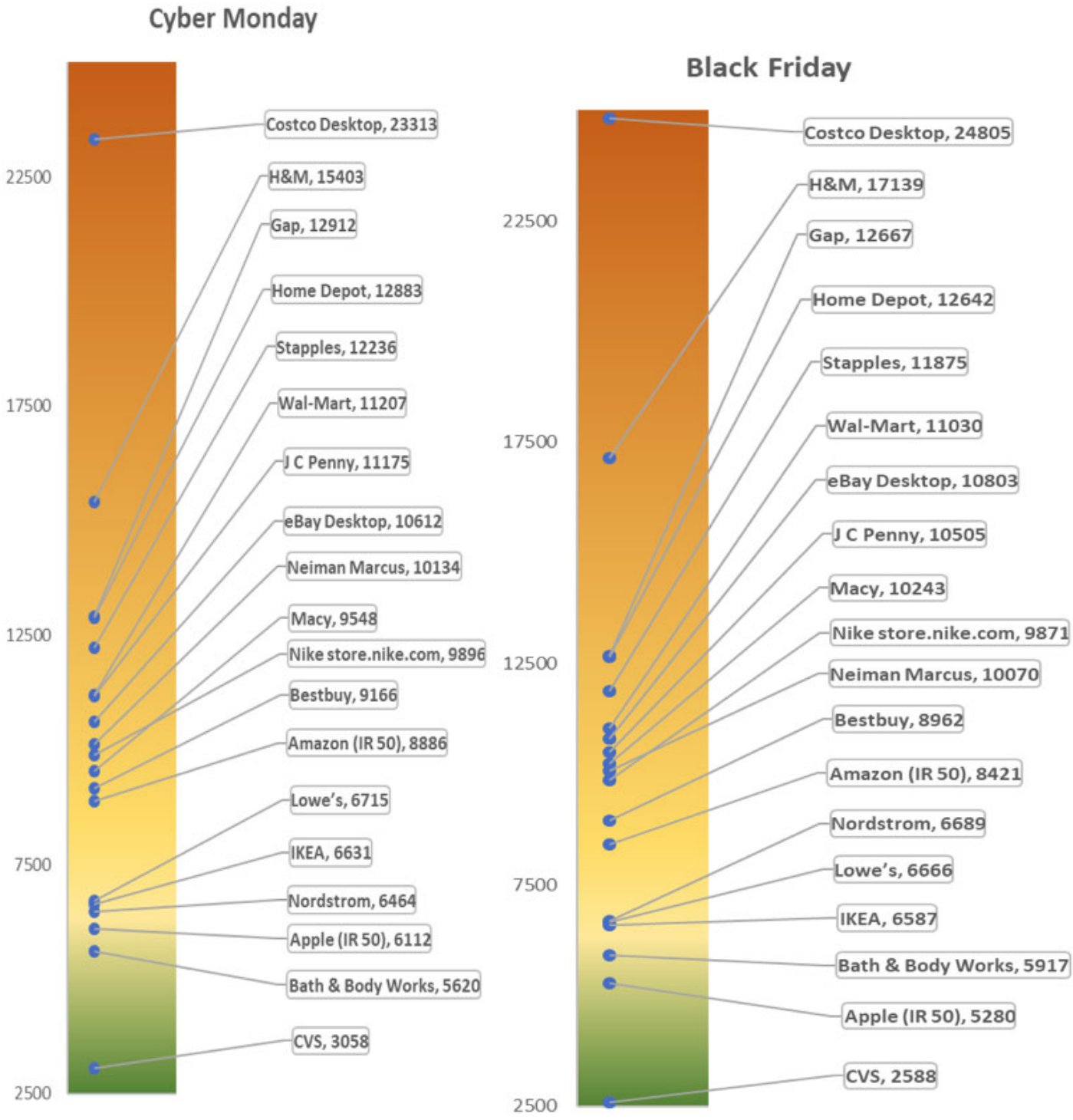
PRODUCT DETAIL PAGE

Webpage Response (in ms) | Statistical Value: Geometric Mean



PRODUCT DETAIL PAGE

Webpage Response (in ms) | Statistical Value: Geometric Mean



PRODUCT DETAIL PAGE

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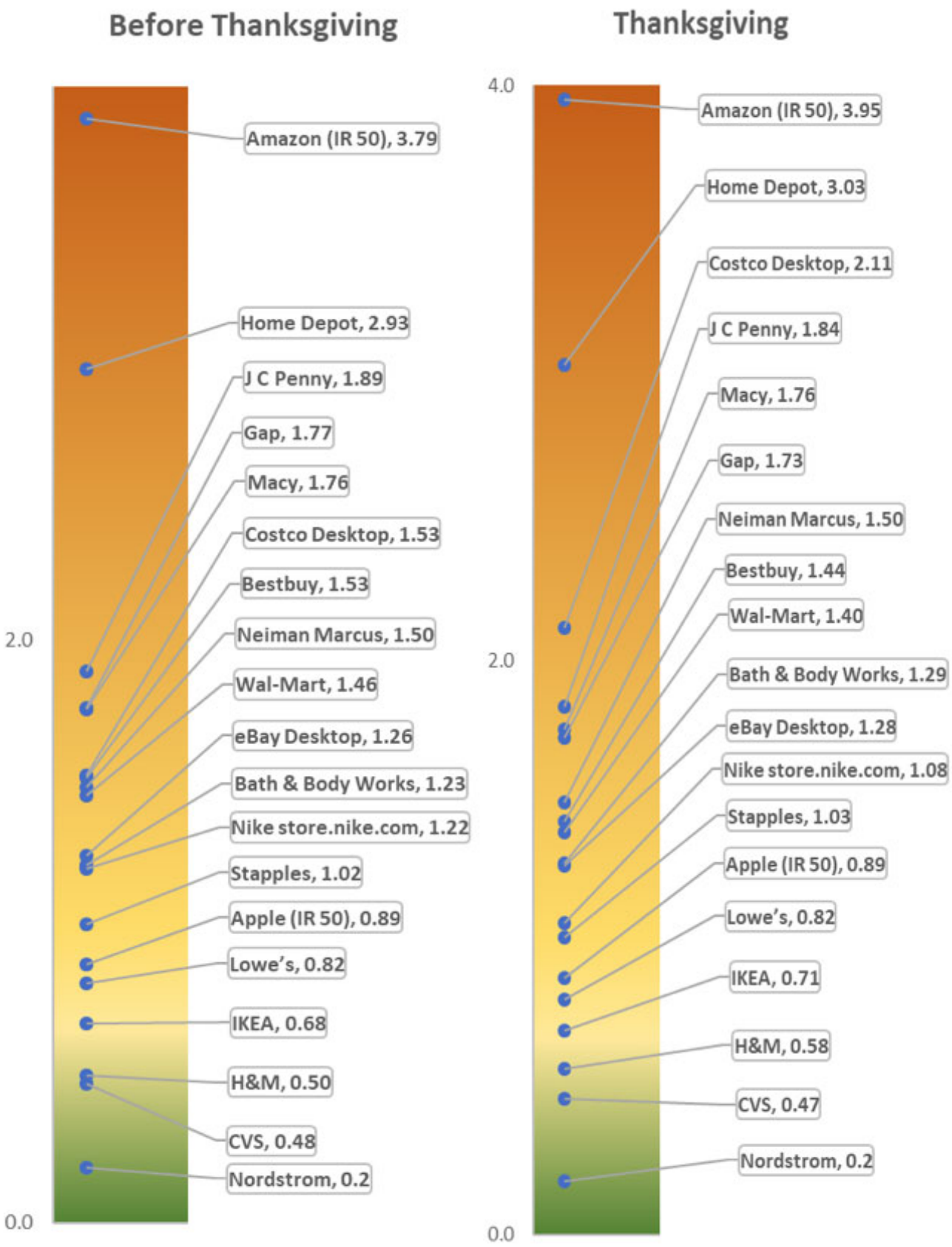

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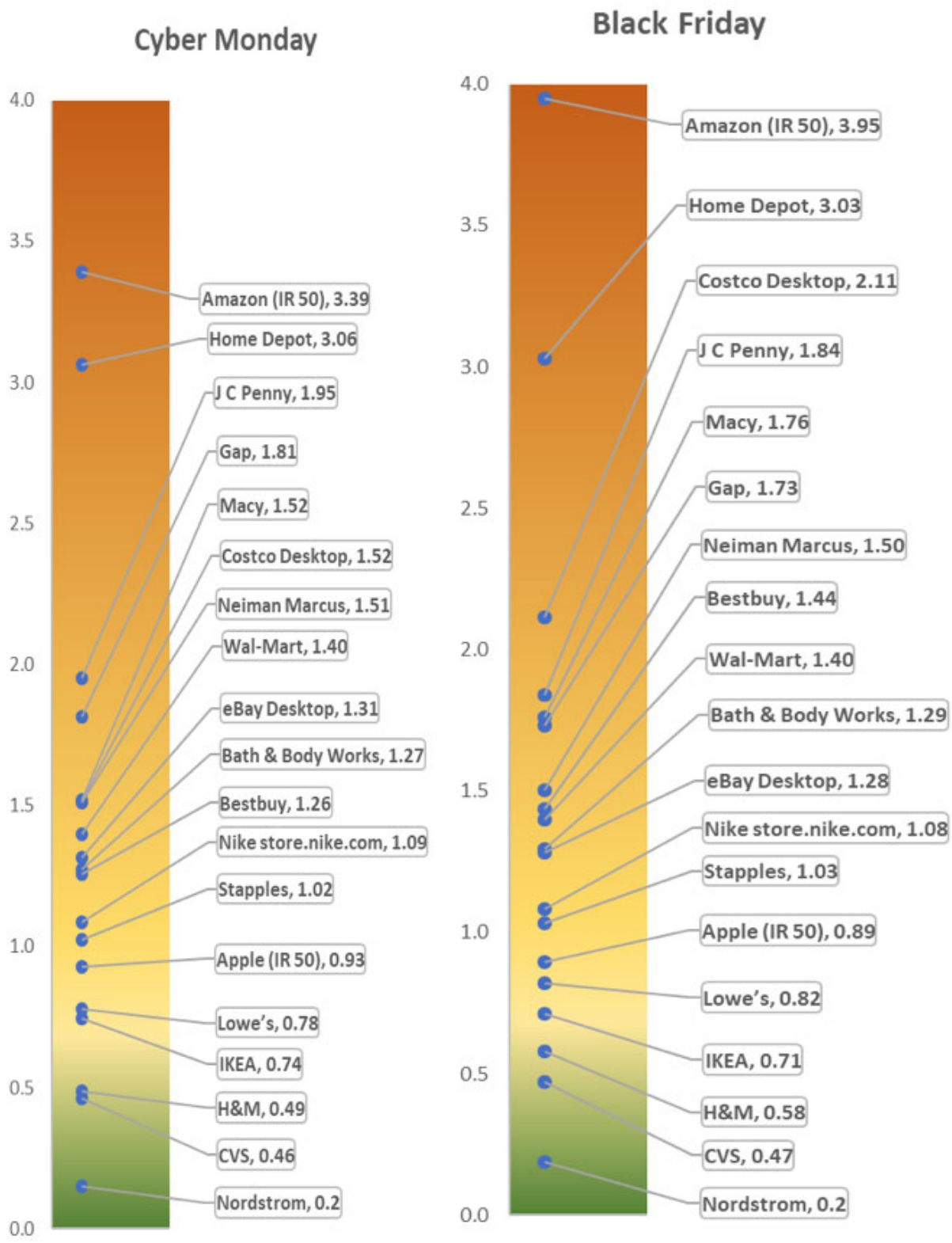
Page Size | Statistical Value: Geometric Mean



PRODUCT DETAIL PAGE

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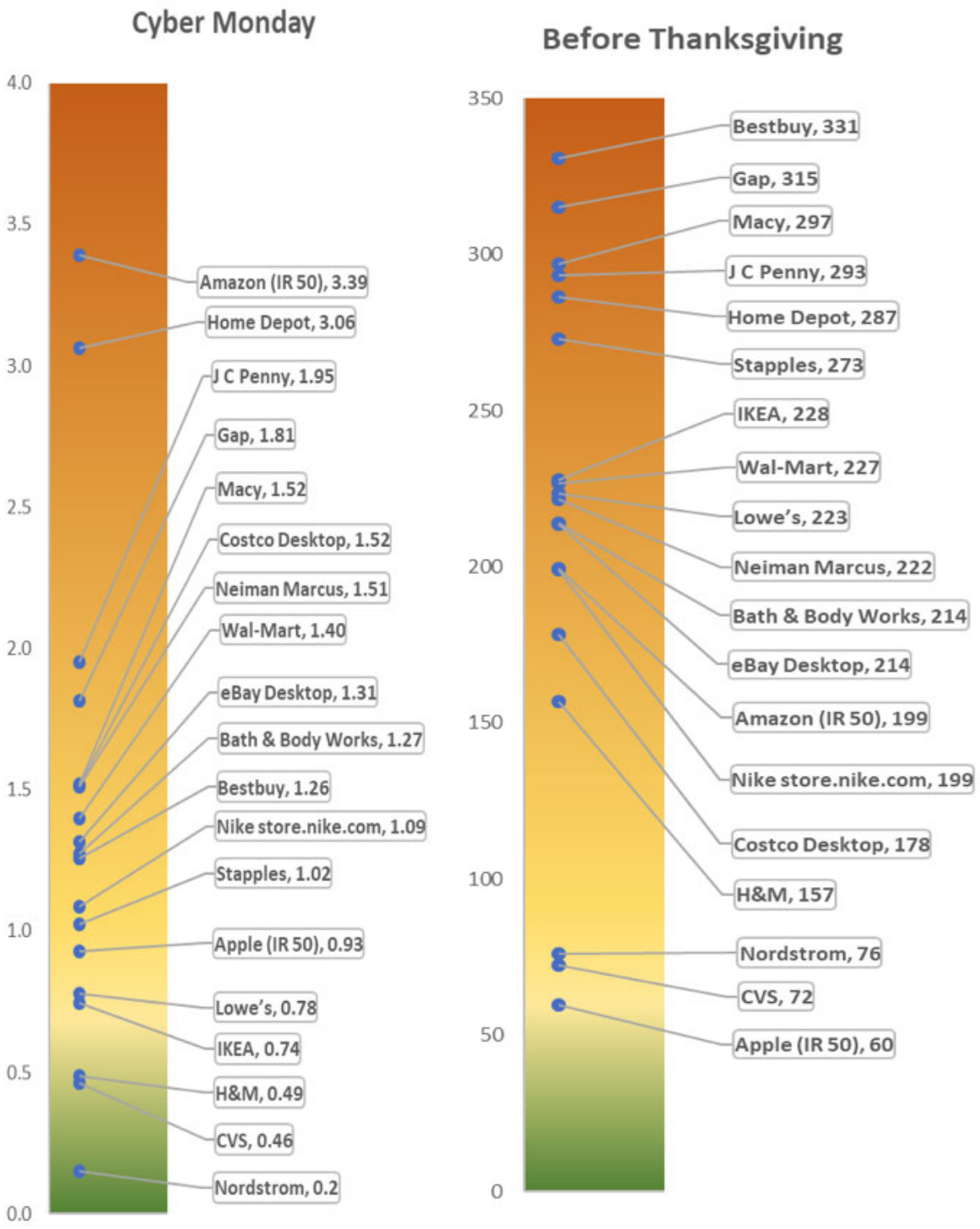

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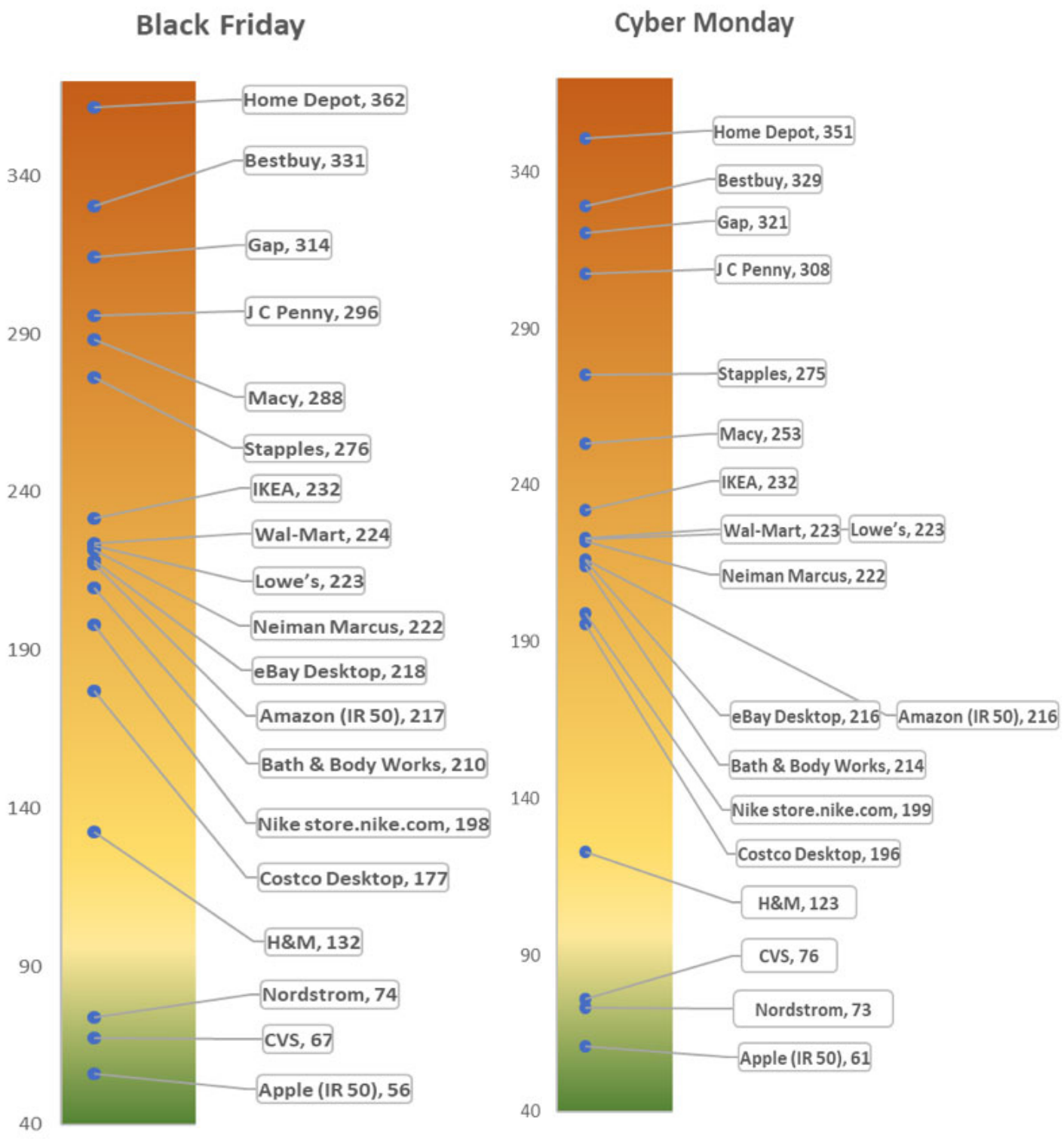
Number of Items | Statistical Value: Geometric Mean



CONCLUSION AND RECOMMENDATIONS

Ecommerce and online retailers continue to optimize and improve performance of webpage as well as critical transactions. However, this year many issues were caused by well-known problems. While the report's data provides many insights, there are three takeaways worth remembering in 2020:

- Slowness is the new downtime
- Websites and applications can be available without being reachable
- Network capacity and connectivity requires proactive monitoring

For ecommerce and online retailers looking to improve web and mobile site performance, here are some solutions to common problems observed during Black Friday and Cyber Monday 2019.

Reduce Page Weight: "Heavy" page remains one of the main causes for slow page load times. We recommend reducing page weight (page weight = amount of data loaded into visitor browser) for faster load times. During peak traffic days, many companies "lighten up" web pages by removing excess images and graphics.

Micro Outages: These types of intermittent slowdowns and/or outages occur when applications or sites are down in a specific geographical region, or for visitors served by the same ISP. Micro outages are caused from traffic spikes and timeouts and slowdowns from third-party components. Today, micro outages are the most common form of downtime.

There are a few steps you can take to reduce the mean time to detect and mean time to resolve micro outages. Don't monitor page load times using national averages as your metric. Instead, focus attention on geographical areas with the highest concentrations of site visitors, and scan all relevant geographies. This ensures an accurate view of performance as experienced from where end users access your application or site performance.

Cloud-Only Monitoring: This vantage point does not monitor key parts of the digital delivery chain—Content Delivery Networks (CDNs), Internet Service Providers (ISPs), Wireless Networks, User Browser, etc.—between your server and the end user's device. For the last few years, APM vendors have been replacing backbone, wireless, and last mile synthetic monitoring with cloud-only synthetic tools. These changes result in fewer testing locations, a loss visibility into the key components mentioned above, and less reliable data, which puts ecommerce companies at greater risk for micro outages and third-party performance problems.

Instead, run synthetic tests to emulate site visitors from last mile, backbone, wireless, enterprise, and cloud nodes to collect telemetry from multiple vantage points, which will assist in root cause analysis. This data can be correlated with measurements captured by real-user monitoring (RUM) to provide end-to-end, real-time insights into performance.

Infrastructure Scalability: The speed and volume at which traffic spikes during the holiday shopping season can cause server overload, which results in web or mobile site downtime or slowdowns.

We recommend running proactive synthetic testing that replicate extreme load spikes for differing types of load (mobile, desktop) as much as possible. These tests illustrate the flow of network traffic, allowing you to prepare a plan for distributing increased traffic load across additional servers. Digital architecture that supports elastic, horizontal scaling is recommended for load balancing because you can easily add new capacity on demand.

But what ecommerce and online retailers need to understand is that performance management requires year-long proactive monitoring. Enterprise and commercial ecommerce organizations must set performance benchmarks and baselines regularly throughout the year – not just in the weeks leading up to Black Friday.

These benchmark and baseline measurements provide metrics that identify areas for improvement and correlate end users' digital experiences to business KPIs. This holistic approach is the best way to understand the impact of performance on revenue while at the same time implementing customer-centric monitoring practices.

HOW TO PREPARE FOR HIGH TRAFFIC EVENTS

Map Each Item of Delivery Chain

What stands between your servers and your end users? Make sure you know the third-party vendors that your organization relies on for delivering service to your customers—Content Delivery Networks (CDNs), Transit and Internet Service Providers (ISPs), Wireless Networks, User Browsers, etc.

Identify Blind Spots

Where are the visibility gaps into the performance of critical dependencies along your digital delivery chain? For mission-critical services hosted beyond your own firewall, you must identify visibility gaps and blind spots.

Capture Availability, Reachability, Performance, and Reliability Data

The increasingly complex design of the internet has caused many enterprises to lose visibility over their infrastructure. In order to regain end-to-end visibility, your monitoring strategy must capture data on more than just uptime; it must capture data on all four pillars of digital experience monitoring: availability, reachability, performance, and reliability.

Establish On-Going Benchmark & Baseline Methodology

Website optimization is an indispensable part of your online business strategy, and to make continuous improvements to your application or site, you need to set baselines for your key digital experience metrics, as well as compare your applications and services to those of your competitors. An ideal monitoring strategy should include both synthetic and real user monitoring (RUM), enabling you to compare, evaluate, and improve your service.

Correlate Technological and Business KPIs

How do you show the business value of website optimizations and improvements? These metrics matter because they determine what and where to optimize, which in turn determines visibility into your website and end-user experience.

Don't Rely on Averages During Peak Traffic

Every digital experience matters, which is why you can't rely on averages when monitoring end-user experience. The problem with relying on averages when monitoring performance is that it doesn't provide an accurate view into performance for tail-end users for whom services may be much slower based on conditions specific to their geographical region. Instead, rely on percentile median value for a more accurate view of performance to pinpoint issues for all users.

Optimize Holistically

Monitoring from the end-user perspective requires a holistic approach because of the added complexity from the number of independent components involved in powering a single application. All of those different components should be analyzed individually and as whole to create a better end-user experience.

APPENDIX

Past Black Friday & Cyber Monday Performance Reports

Black Friday Performance: Third-Party Outage Strikes Again, November 2018
Black Friday & Cyber Monday Performance Report 2017, November 2017
Black Friday & Cyber Monday Performance Report 2016, December 2016
Goodbye Lines and Midnight Madness, Black Friday is Going Online, December 2015
Lessons Learned from Black Friday and Cyber Monday 2014, December 2014
Black Friday & Cyber Monday 2013: The Results Are In!, November 2013
Black Friday & Cyber Monday 2012: The Results Are In!, November 2012
Black Friday 2011: The Results Are In!, November 2011

Resources on Digital Experience Monitoring

Gartner Market Guide for Digital Experience Monitoring, September 2019
The Four Pillars of Digital Experience Monitoring, July 2019
The Future of Synthetic Testing is EVERYTHING from EVERYWHERE, July 2019
Why APM Synthetic Monitoring Isn't Enough to Protect Your Revenue, June 2019
What is Digital Experience Monitoring?, March 2019

Resources on Ecommerce Monitoring

API Monitoring eBook, November 2019
Online Benchmarking: Don't Fall Behind Your Competitors, August 2019
DevOps Guide to Black Friday 2019, July 2019
Delivering Great Ecommerce Performance During Black Friday 2019, June 2019
The Performance Cost of Micro-Outages, January 2019
The Performance Impact of Tags 2.0, March 2018
Ecommerce in the Cloud: Bringing Elasticity to Ecommerce, September 2017

Catchpoint Monitoring Services

Managed Monitoring Services
Managed Monitoring Services eBook, May 2019
Improving Performance and Visibility through Managed Monitoring, May 2019

ABOUT CATCHPOINT

Catchpoint, the global leader in Digital Experience Monitoring (DEM), empowers business and IT leaders to protect and advance the experience of their customers and employees. In a digital economy, enabled by cloud, SaaS and IoT, applications and users are everywhere. Catchpoint offers the largest and most geographically distributed monitoring network in the industry – it's the only DEM platform that can scale and support today's customer and employee location diversity and application distribution. It helps enterprises proactively detect, identify and validate user and application reachability, availability, performance and reliability, across an increasingly complex digital delivery chain. Industry leaders like Google, L'Oréal, Verizon, Oracle, LinkedIn, Honeywell, and Priceline trust Catchpoint's out-of-the box monitoring platform, to proactively detect, repair, and optimize customer and employee experiences.

Learn more at www.catchpoint.com/