

Central Indicator Data Repository (CIDR)

Standardizing, Streamlining, & Securing the Economic Indicator Data

Objectives/Agenda

- History of CIDR
- Current state – CIDR3
- Release Platform Optimization
- Security and Monitoring
- Future Enhancements

CIDR History & Iterations

Nicole Davis

- C – Central
- I – Indicator
- D – Data
- R – Repository

CIDR has always been a system used to assist with and ensure the most accurate and timely release of indicator data. CIDR has gone through a few iterations, but the goal has always been the same.

CIDR1

Provided data users with the ability to create customized time series data of all economic indicators, with options to download text or excel files and create bar and line charts within milliseconds of the indicator release time.

Balance of Payment Goods and Services: United States — Seasonally Adjusted Balance [Millions of Dollars]

[TXT](#) [XLS-V](#) [XLS-H](#) [Bar Chart](#) [Line Chart](#)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	-37,744	-41,504	-40,270	-41,496	-42,088	-47,316	-41,610	-45,619	-44,334	-40,647	-38,739	-41,722
2011	-48,123	-44,753	-44,313	-42,685	-47,724	-49,882	-46,070	-45,052	-43,477	-45,510	-47,461	-49,474
2012	-50,126	-42,780	-49,749	-46,842	-45,106	-42,941	-42,406	-44,030	-38,794	-41,467	-45,332	-36,334
2013	-40,135	-41,004	-34,314	-38,487	-41,701	-34,426	-36,356	-36,617	-39,917	-36,285	-33,983	-33,636
2014	-37,433	-40,119	-42,940	-43,735	-39,575	-38,895	-38,935	-36,935	-41,672	-41,067	-39,808	-42,838
2015	-38,865	-33,903	-48,732	-39,836	-38,502	-42,425	-40,340	-44,205	-41,641	-40,873	-40,451	-41,003
2016	-40,045	-43,305	-36,801	-38,048	-39,031	-41,719	-39,932	-40,147	-37,004	-38,555	-43,895	-40,977
2017	-43,556	-39,785	-41,124	-44,227	-43,985	-42,579	-43,854	-41,391	-41,593	-42,848	-45,463	-46,535
2018	-47,072	-48,793	-43,508	-46,129	-41,421	-44,811	-49,673	-49,558	-50,563	-52,453	-49,401	-55,212
2019	-49,146	-47,264	-48,467	-49,433	-50,303	-48,518	-48,289	-48,565	-44,542	-41,804	-38,956	-44,107
2020	-43,950	-40,611	-43,967	-52,981	-54,700	-49,121	-59,470	-62,219	-58,182	-61,489	-64,414	-61,776
2021	-62,331	-64,872	-65,941	-65,898	-66,379	-70,831	-69,338	-71,816	-76,771	-67,360	-79,379	-80,656
2022	-86,503	-86,960	-102,536	-86,016	-84,075	-80,851	-71,672	-67,315	-71,726	-78,329	-63,818	-71,386
2023	-70,172	-70,230	-60,594	-74,552	NA	NA	NA	NA	NA	NA	NA	NA

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CIDR2

Provided indicator staff a centralized system where they could combine additional release processes with the previous version of CIDR, allowing them to upload their data files and briefing room and dashboard updates as well.

This system gave users a place where they could test the release not only the day prior to the release, but also an hour before the release to ensure the most accuracy. The system released the data files automatically at release time, eliminating manual pushes and ensuring availability of files within milliseconds of the release time.

The screenshot displays the CIDR2 interface, which includes a central 'FTD Release HUB' table and several 'U.S. Economic Indicators' dashboards.

FTD Release HUB Table:

Release ID	Statistical Period	Release Date	Release Time	Release Components
719	Apr 2023	2023-06-07	08:30:00	Published Content

	Uploaded	Reviewed	Approved	Published
Press Release	✓	1	✓	✓
Dashboard	✓	0	✓	✓
CSV Upload	✓	0	✓	✓

U.S. Economic Indicators Dashboards:

- Manufacturers' Goods:** June 2023 Report, Released August 3rd, 2023. Value: \$592.0 B, New Orders: 2.3%.
- Rental Vacancy Rate:** 2nd Qtr 2023 Report, Released August 2nd, 2023. Value: 6.3%.
- Homeownership Rate:** 2nd Qtr 2023 Report, Released August 2nd, 2023. Value: 65.9%, Homeownership Rate: 0.1%PTS.
- Construction Spending:** June 2023 Report, Released August 1st, 2023. Value: \$1,938.4 B, Construction Spending: 0.5%.

Challenges Faced in CIDR2

The rest of the Census Bureau websites were transitioning to using the Content Management System (CMS). The webpages would have much standardization with a look and feel to all pages within the site.

As the indicators planned to move into the CMS, it was determined that the CMS was not a feasible approach, as it would not be able to handle releases within milliseconds of the indicator release schedule.

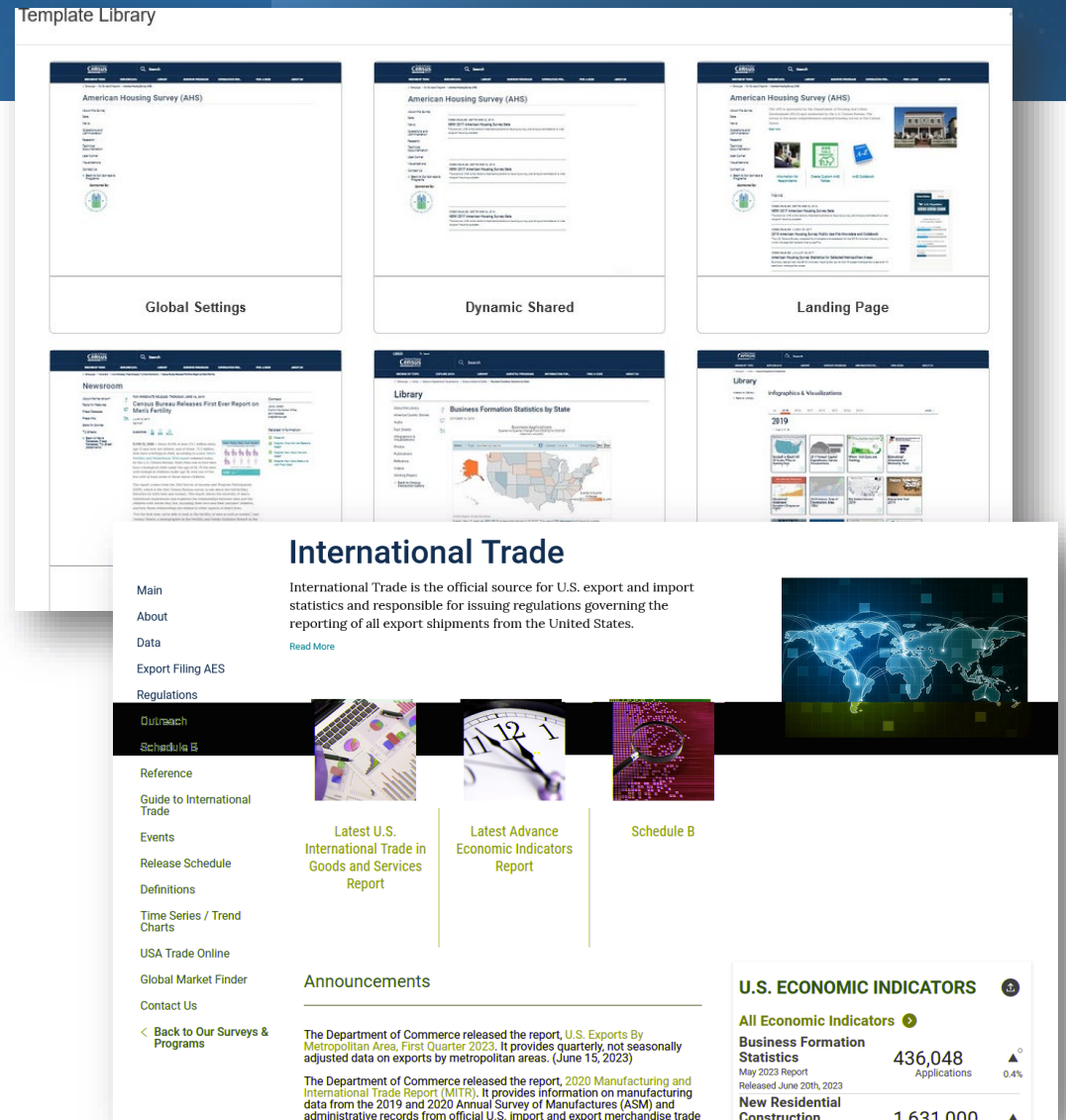
An alternate solution was necessary that could not only create a unified look of the indicator pages to the rest of the Census pages but could also ensure a timely and efficient release of data.

Improvements Introduced in CIDR3

- Standardized the look and feel of the Indicator websites to the rest of the Census site.
- Standardized the navigation of Indicator websites to each other.
- Provided a more streamlined experience for data users of the Indicator websites.
- Provides internal staff ease of use for creating and updating webpages.

Website Standardization

- CIDR3 introduced the use of templates to create all the pages within the indicator sites. The templates were modeled after webpages from the rest of the Census site already in the CMS.
- This allowed the pages to not only have a similar look and feel with the rest of the Census pages, but also made every indicator have similar navigation in finding the data through the site.
- Among these pages are a "Landing Page" which allows for similar navigation across the indicator sites and a "Press Release Page" where users can preview the full release



Accessibility for Website Creation

- With the use of templates and rich text editors, staff really needed no previous knowledge of HTML coding to be able to update or add new webpages.
- Users can just type in the editor box and format within the box to create different sections of a webpage.

The screenshot displays a content management system interface. At the top, there is a list of pages with columns for file names, status, and dates. Below this is a 'Section Content (Link)' dropdown menu with 'Section Data' and status icons. The main area shows a rich text editor with a toolbar and the following content:

Seasonally Adjusted (Nominal) Data

Balance Of Payments (BOP) Basis

International Trade in Goods and Services

- Annual goods (BOP basis), services, and total balance, exports and imports, 1960 - Present [PDF](#) | [XLSX](#)
- Monthly and annual goods (BOP basis), services, and total balance, exports and imports, 1992 - Present [PDF](#) | [XLSX](#)

International Trade in Goods

- Annual goods (BOP basis and Census basis) balance, exports and imports with percent change, 1960 - Present [PDF](#) | [XLSX](#)

Census Basis (International Trade in Goods)

1992 - Present [PDF](#) | [XLSX](#)
1992 - Present [PDF](#) | [XLSX](#)
Monthly and Quarterly totals

Census Basis (International Trade in Goods)

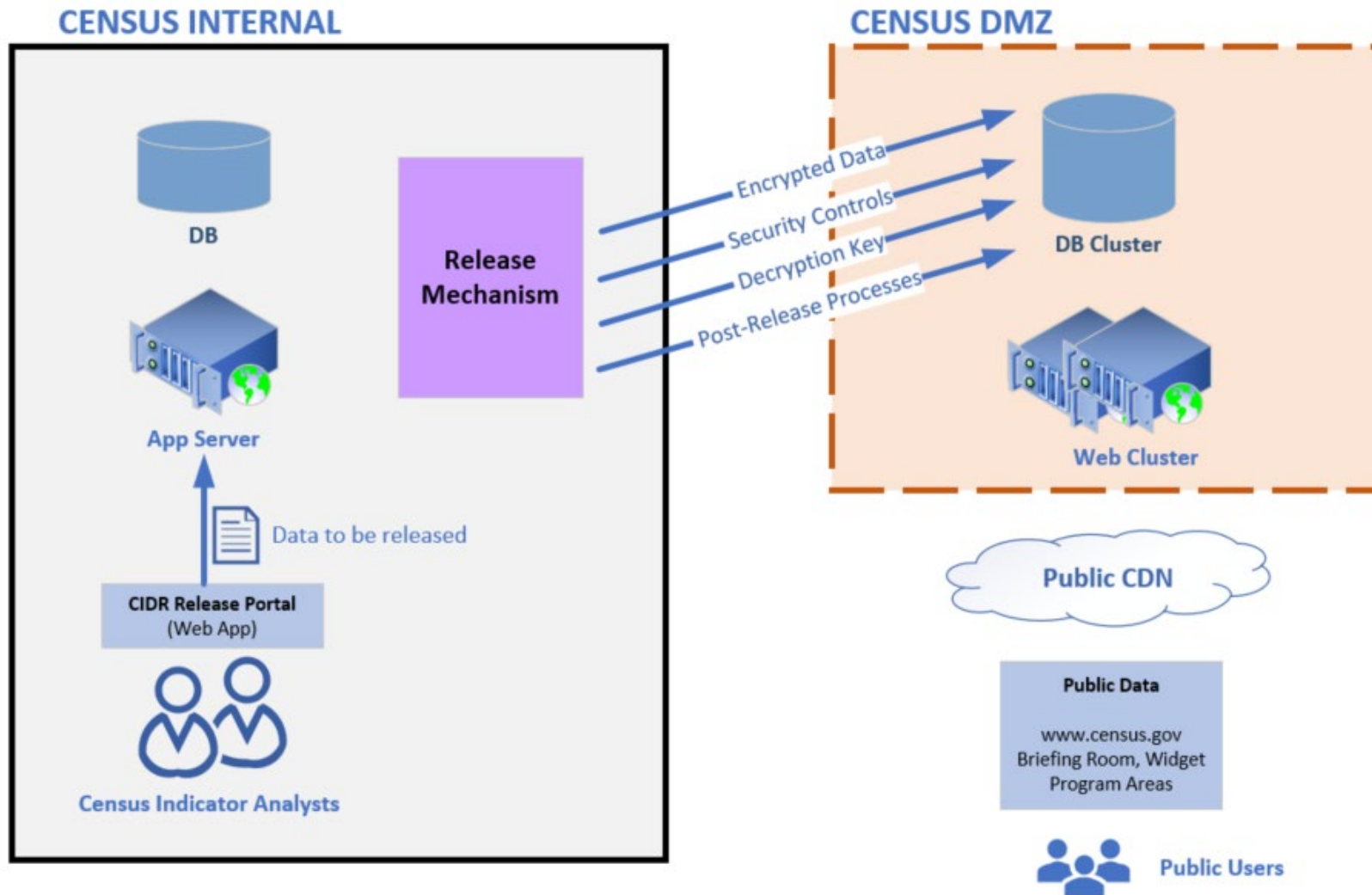
- [Monthly and Annual Goods Balance](#), exports and imports
- Exports of Goods by Principal End-Use Category, monthly and annual,
- Imports of Goods by Principal End-Use Category, monthly and annual,
- Exports, Imports, and Balance of Petroleum and Non-Petroleum End-Use Category, monthly and annual, 1992 - Present [PDF](#) | [XLSX](#)
- Exports, Imports and Trade Balance by Selected Countries and Areas, 2009 - Present [Download Full Dataset \(XLSX - 0.1 MB\)](#)

Release Platform Optimization in CIDR3

Daniel Summers

- Automated execution of release checklist
- One-time decryption of content during first attempt
- Subsequent caching of data to eliminate trip to the census network and infrastructure
- Real-time identification of BOTs with rate limiting controls on burst attempts
- Detection and prevention of cache bursting scenarios prior to straining internal load balancers

Release Platform Components



Monitoring Dashboard

CIDR3 MONITOR

Click to Raise an Issue

[Show Issue History](#)
[MySQL Monitor: https://mysqlm.econ.census.gov:18443/Auth.action](https://mysqlm.econ.census.gov:18443/Auth.action)
[Hits Analysis Tool: https://sso.econ.census.gov/cidr_traffic/public/home](https://sso.econ.census.gov/cidr_traffic/public/home)
 Releases: 866-600-3157, 121012#
 Hotline: 301-763-1500
 Emergencies: 866-880-0098, 6751184#
 refreshing in 16s...

RELEASES

Upcoming

2023-11-29 08:13:00 MRTSADV (id:825)
 2023-11-29 08:30:00 MMTSADV (id:837)
 2023-11-29 08:30:00 FTDADV (id:895)
 2023-12-01 10:00:00 VIP (id:701)
 2023-12-04 10:00:00 M3 (id:713)
 2023-12-06 08:51:00 FTD (id:725)

Previous

2023-11-27 10:00:00 RESSALES (id:861)
 2023-11-22 08:30:00 M3ADV (id:689)
 2023-11-17 10:00:00 QSS (id:740)
 2023-11-17 08:30:00 RESCONST (id:849)
 2023-11-15 10:00:00 MTIS (id:801)

1 2 3 4 5 ... 40

Stats:

[2023-Nov.xlsx](#)
[2023-Oct.xlsx](#)
[2023-Sep.xlsx](#)
[2023-Aug.xlsx](#)
[2023-Jul.xlsx](#)
[2023-Jun.xlsx](#)

TIME STATUS	NTP STATUS	VHOST STATUS	DB STATUS	SERVER STATUS	DB CHECKSUM STATUS
ok	...	ok	ok	ok	ok

Time	Status	Action
2023-11-27 10:01:22	FTD	Copied unstructured content to external database cidr-web5-
2023-11-27 10:01:19	FTD	Copied unstructured content to external database cidr-web5-
2023-11-27 10:01:01	FTD	Copied indicator pages to external databa
2023-11-27 10:00:28	FTD	Copied unstructured non-release content to external database c
2023-11-27	FTD	Copied unstructured non-release content to external database c

Release: 861 - refreshing in 30s

	to external db(s)		09:59:52	09:59:55	
6.1	Curl Completed Successfully	COMPLETE	2023-11-27 10:00:00	2023-11-27 09:59:55	cron
5.6	Unstructured Content files have been moved to the DMZ but are currently encrypted	COMPLETE	2023-11-27 10:00:00	2023-11-27 09:55:51	RESSALES
5.6	Unstructured Content files have been moved to the DMZ but are currently encrypted	COMPLETE	2023-11-27 10:00:00	2023-11-27 09:55:48	RESSALES
5.6	Unstructured Content files have been moved to the DMZ but are currently encrypted	COMPLETE	2023-11-27 10:00:00	2023-11-27 09:55:45	RESSALES
5.6	Unstructured Content files have been moved to the DMZ but are currently encrypted	COMPLETE	2023-11-27 10:00:00	2023-11-27 09:55:42	RESSALES

Live Traffic Management

CIDR Traffic
Home
Heavy Hitters
Rate Limit Tool
Volume Comparison
Real Time Release

For Release:

2023-11-13 10:00:00 (BFS) ▼

All data is from **-1 min to +1 min** from release time

264

Total IPs

5

IPs from Heavy Hitters
(over 100 hits)

2,894

Total Hits

731

Hits from Heavy Hitters

25.26%

Heavy Hitters Share
(% of hits from HHs)

394 (53.9%)

Hits Before

337 (46.1%)

Hits After

71

Ave Urls Requested

0 (0%)

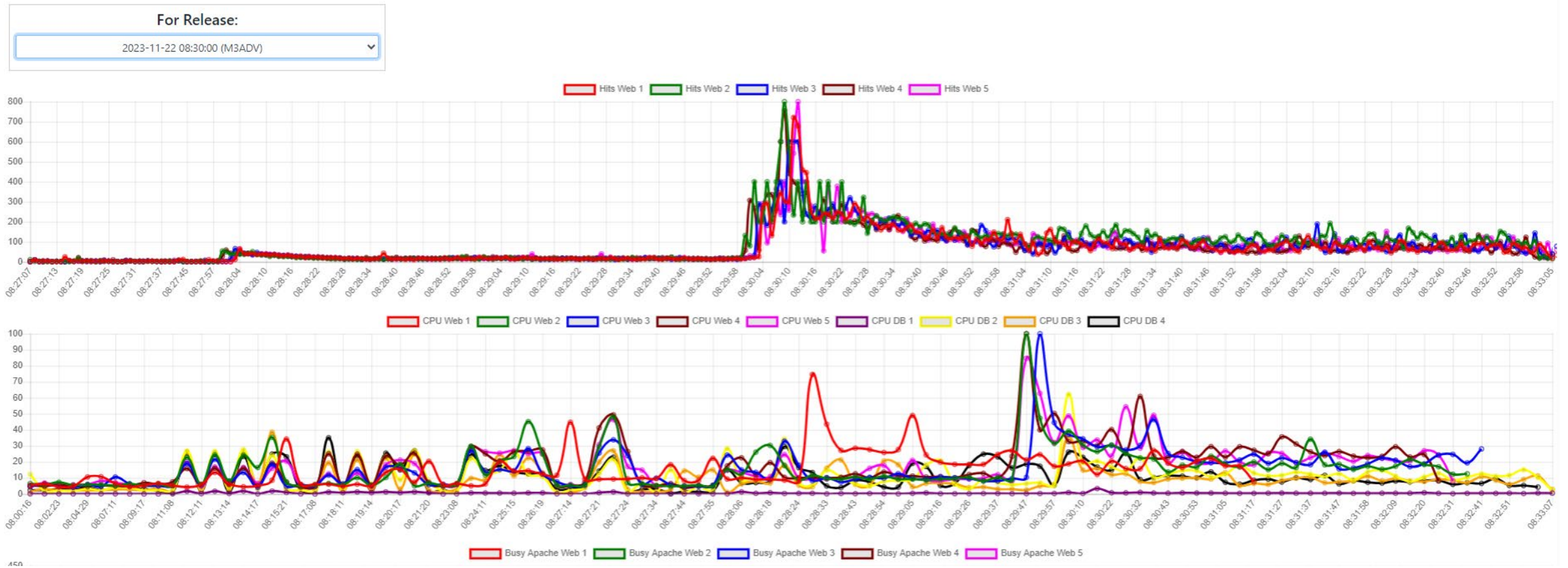
502s

⚠ Double click any row to drill down! Also note that this table is sortable and filterable.

Search

IP	Likely Source	Total Hits	Hits Before	Hits After	Unique Urls	502s	404s
172.23.178.250	private private	201	167 (83.08%)	34 (16.9%)	104 (details)	0	0
128.143.22.146	University of Virginia Charlottesville VA 22903, US	183	15 (8.20%)	168 (91.8%)	50 (details)	0	0
2601:14b:4083:48e0:ed71:fe9:5c4e:e00	Comcast Cable Communications, LLC Bowie MD 20716, US	134	0 (0.00%)	134 (100.0%)	51 (details)	0	0
122.167.6.132	ABTS (Karnataka) Bengaluru KA 560008, IN	107	106 (99.07%)	1 (0.9%)	102 (details)	0	0

Real-time Load Monitoring



Rate Limiting Controls

CIDR Traffic [Home](#) [Heavy Hitters](#) [Rate Limit Tool](#) [Volume Comparison](#) [Real Time Release](#)

For Release:

2023-11-17 10:00:00 (QSS) ▼

All data is from **-1 min to +1 min** from release time

Rate Limit per IP:

Average Threshold
 hits per

The average number of hits per second occurring within a two-minute window.

Burst Threshold
 hits per second

The average number of hits per second occurring within a five-second window.

Penalty Box
 minutes

8671 Before
7799 After

Hit Counts

10.06%

Hit Reduction %

4 Affected
529 Total
(0.76%)

Affected User Count

IP	Location	Affected by Limit	Affected by Average Limit	Affected by Burst Limit	Hits Before Limit	Hits After Limit	Reduction %
192.234.235.103 (details)	-	Yes	No	Yes	131	6	95.42
199.67.138.47 (details)	-	Yes	No	Yes	599	71	88.15
172.22.114.136 (details)	-	Yes	No	Yes	213	86	59.62
171.158.226.50 (details)	-	Yes	No	Yes	230	138	40.00
34.250.89.35 (details)	-	No	No	No	195	195	0.00
206.41.177.184 (details)	-	No	No	No	6	6	0.00
119.13.202.56 (details)	-	No	No	No	3	3	0.00
136.226.232.98 (details)	-	No	No	No	196	196	0.00
172.23.71.154							

Future Advancements

- As an ever-evolving system, there are plans in place for:
 - Cloud Transition
 - Fault Tolerance
 - Automated Testing
 - Traffic Forecasting
 - AI-Powered Templates
 - Briefing Room Re-Design



Thank you!

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