

Cloud Network Monitoring Use Cases

Expensive Network Traffic

✓ Cross AZ traffic

Cross AZ traffic

Cross availability zone (AZ) traffic in the cloud can be expensive.

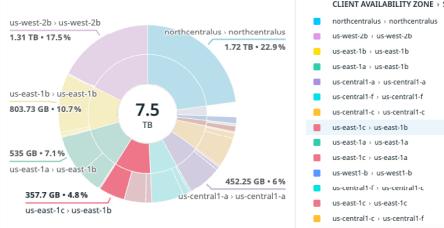
Top cross-AZ traffic - filtered by env variable

This pie chart shows the breakdown of traffic from any network flow with an env tag. Filtering for a specific env at the top of the dashboard will update the pie chart to show cross AZ traffic for that env.

Top cross-AZ traffic - filtered by service variable

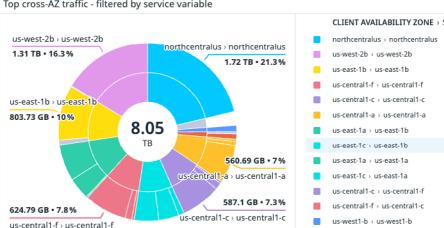
This pie chart shows the breakdown of traffic from any network flow with a service tag. Filtering for a specific service at the top of the dashboard will update the pie chart to show cross AZ traffic for just that service.

Top cross-AZ traffic - filtered by env variable



CLIENT AVAILABILITY ZONE + SERVER ENV	COUNT	SHARE
northcentralus : northcentralus	1,716.1 GB	22.88 %
us-west-2b : us-west-2b	1,310.1 GB	17.47 %
us-east-1b : us-east-1b	803.7 GB	10.71 %
us-east-1a : us-east-1a	535.0 GB	7.13 %
us-central1-a : us-central1-a	452.3 GB	6.03 %
us-central1-c : us-central1-c	405.4 GB	5.84 %
us-east-1c : us-east-1b	357.7 GB	4.77 %
us-east-1a : us-east-1a	319.4 GB	4.26 %
us-east-1c : us-east-1c	293.5 GB	3.91 %
us-west-1b : us-west-1b	90.9 GB	1.21 %
us-central1-f : us-central1-f	85.8 GB	1.14 %
us-east-1c : us-east-1c	83.6 GB	1.11 %
us-central1-c : us-central1-f	80.5 GB	1.07 %

Top cross-AZ traffic - filtered by service variable



CLIENT AVAILABILITY ZONE + SERVER SERVICE	COUNT	SHARE
northcentralus : northcentralus	1,716.1 GB	21.31 %
us-west-2b : us-west-2b	1,310.7 GB	16.27 %
us-east-1b : us-east-1b	803.7 GB	9.98 %
us-east-1a : us-central1-a	624.8 GB	7.76 %
us-central1-f : us-central1-f	587.1 GB	7.29 %
us-central1-a : us-central1-f	560.7 GB	6.96 %
us-east-1a : us-east-1b	535.0 GB	6.64 %
us-east-1c : us-east-1b	357.7 GB	4.44 %
us-east-1a : us-east-1a	319.4 GB	3.96 %
us-east-1c : us-central1-f	293.5 GB	3.64 %
us-central1-c : us-central1-f	100.6 GB	1.25 %
us-east-1c : us-central1-c	97.1 GB	1.21 %
us-west-1b : us-west-1b	90.9 GB	1.13 %
us-east-1c : us-east-1c	83.6 GB	1.04 %

1

✓ External traffic

External network traffic by domain

DOMAIN	BYTES SENT
monitoring.googleapis.com	577.73 GB
b0ccb1598664.tr6341.northcentralus1-worker.database.windows.net	367.23 GB
api.segment.io	74.18 GB
6115cf30-82e6-468d-a57c-2d8fb61049ec.ods.opinsights.azure.com	46.11 GB
s3.us-west-2.amazonaws.com	42.29 GB
cdd998c03.tr743.northcentralus1-worker.database.windows.net	34.85 GB
6052fb71-80c4-43aa-8058-e3b125bb726.ods.opinsights.azure.com	32.07 GB

External network traffic

External network traffic can be another costly source of traffic. See which domains the service selected at the top of the page is talking to, and how much traffic is being sent to the respective domains.

2

Traffic through gateways

Traffic through Gateways

Traffic going through NAT gateways, Transit gateways, or Internet gateways could be another source of expensive traffic.

This table shows your top host and gateway talkers, including NAT, Transit, and Internet gateways as well as VPC endpoints.

Top host to NAT gateway traffic

CLIENT HOST	GATEWAY ID	BYTES SENT
ip-172-25-117-185.ec2.internal-dev-eks-shopist-a-us-east-1	nat-0b9530cc2a9472d962	194.3 GB
ip-172-25-123-83.ec2.internal-prod-eks-shopist-a-us-east-1	nat-06aff2320eb5d2fed	144.0 GB
ip-172-25-115-14.ec2.internal-prod-eks-shopist-a-us-east-1	nat-052037aef65216d93	116.1 GB
ip-172-25-114-94.ec2.internal-prod-eks-shopist-a-us-east-1	nat-052037aef65216d93	113.3 GB
ip-172-25-123-118.ec2.internal-prod-eks-shopist-a-us-east-1	nat-06aff2320eb5d2fed	93.5 GB
ip-172-25-118-88.ec2.internal-prod-eks-shopist-a-us-east-1	nat-0b930cc2a5472df62	88.7 GB
ip-172-25-120-240.ec2.internal-prod-eks-shopist-a-us-east-1	nat-06aff2320eb5d2fed	88.3 GB
ip-172-25-117-49.ec2.internal-prod-eks-shopist-a-us-east-1	nat-0b930cc2a5472df62	83.7 GB
ip-172-25-118-246.ec2.internal-prod-eks-shopist-a-us-east-1	nat-0b930cc2a5472df62	83.2 GB
ip-173-25-123-121.ec2.internal-vnukkachnznkta.us-east-1	nat-06aff2320eb5d2fed	82.4 GB

Top host to Internet gateway traffic

CLIENT HOST	GATEWAY ID	BYTES SENT
ip-10-1-113-70.us-west-2.compute.internal-prod-eks-shopist-a-us-west-2	igw-02efd5e9b5f871ebd	195 GB
ip-10-1-112-231.us-west-2.compute.internal-prod-eks-shopist-a-us-west-2	igw-02efd5e9b5f871ebd	192 GB
ip-10-1-112-232.us-west-2.compute.internal	igw-02efd5e9b5f871ebd	181 GB

3

About Datadog

Datadog is a leading SaaS-based observability and security platform that brings together telemetry from across your tech environment—including infrastructure metrics, application traces, and logs—together in a single platform. Our monitoring capabilities include customizable alerting and monitoring reports and visualization tools like out-of-the-box dashboards, making it easy and fast to investigate and resolve issues. With integrations with major cloud providers and network vendors, Datadog provides end-to-end network visibility in a single pane of glass. Explore key Cloud Network Monitoring metrics that provide insights into real-world use cases.

1. CROSS AZ TRAFFIC

Cross availability zone (AZ) traffic in the cloud could be expensive. This section provides you with an overview of how to view expensive AZ traffic by env or service.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top cross-AZ traffic - filtered by env variable	(client_env:* OR server_env:*)	availability-zone	availability-zone	sum of (Bytes Sent) limit to (100)
Top cross-AZ traffic - filtered by service variable	(client_service:* OR server_service:*)	availability-zone	availability-zone	sum of (Bytes Sent) limit to (100)

2. EXTERNAL TRAFFIC

External traffic in the cloud could be expensive. This section provides you with an overview of top external domains that the service is sending traffic to and how much traffic.

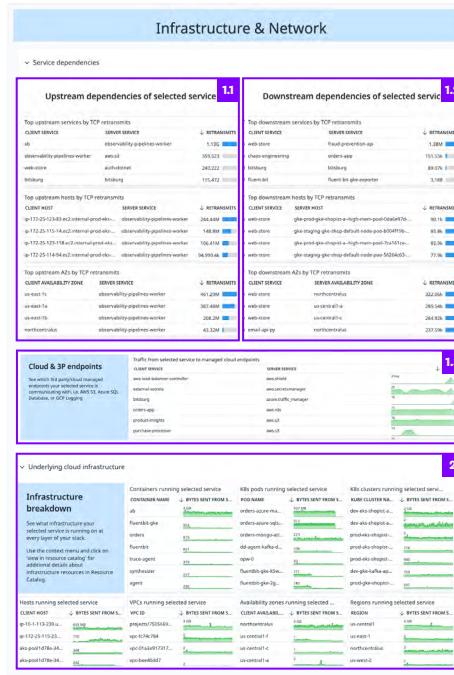
QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
External network traffic by domain	client_service:* network.server.ip_type:other -server_domain:*datadoghq.com	ungrouped traffic	domain	sum of (Bytes Sent) limit to (100)

3. TRAFFIC THROUGH GATEWAYS

Traffic going through NAT gateways, Transit gateways, or Internet gateways could be expensive. This section provides you with an overview of top traffic by host going through NAT, Transit, and Internet gateways.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top host to NAT gateway traffic	network.server.ip_type:other server_gateway_type:aws_nat_gateway	host	gateway_id	sum of (Bytes Sent) limit to (100)
Top host to internet gateway traffic	network.server.ip_type:other server_gateway_type:aws_internet_gateway	host	gateway_id	sum of (Bytes Sent) limit to (100)

Cloud Network Monitoring Use Cases



1. SERVICE DEPENDENCIES

1.1 Upstream dependencies of selected service

This section provides an overview of upstream infra for a given service.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top upstream services by TCP retransmits	server_service:* (client_env:* OR server_env:*)	service	service	sum of (TCP Retransmits) limit to (100)
Top upstream hosts by TCP retransmits	server_service:* (client_env:* OR server_env:*)	host	service	sum of (TCP Retransmits) limit to (100)
Top upstream AZs by TCP retransmits	server_service:* (client_env:* OR server_env:*)	availability-zone	service	sum of (TCP Retransmits) limit to (100)
Top upstream regions by TCP retransmits	server_service:* (client_env:* OR server_env:*)	region	service	sum of (TCP Retransmits) limit to (100)

1.2 Downstream dependencies of selected service

This section provides an overview of downstream infra for a given service.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top downstream services by TCP retransmits	client_service:* (client_env:* OR server_env:*)	service	service	sum of (TCP Retransmits) limit to (100)
Top downstream hosts by TCP retransmits	client_service:* (client_env:* OR server_env:*)	service	host	sum of (TCP Retransmits) limit to (100)
Top downstream AZs by TCP retransmits	client_service:* (client_env:* OR server_env:*)	service	availability-zone	sum of (TCP Retransmits) limit to (100)
Top downstream regions by TCP retransmits	client_service:* (client_env:* OR server_env:*)	service	region	sum of (TCP Retransmits) limit to (100)

1.3 Traffic from selected service to managed cloud endpoints

This section provides an overview of cloud managed endpoints your selected service is communicating with.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Traffic from selected service to managed cloud endpoints	client_service:* (client_cloud_endpoint_detection:true OR server_cloud_endpoint_detection:true)	service	service	sum of (TCP Latency) limit to (100)

2. UNDERLYING CLOUD INFRASTRUCTURE

This section shows the network performance for the underlying infrastructure of a selected service.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Containers running selected service	client_service:*	container_name	ungrouped traffic	sum of (Bytes Sent) limit to (100)
K8s pods running selected service	client_service:*	pod_name	ungrouped traffic	sum of (Bytes Sent) limit to (100)
K8s clusters running selected service	client_service:*	kube_cluster_name	ungrouped traffic	sum of (Bytes Sent) limit to (100)
Hosts running selected service	client_service:*	host	ungrouped traffic	sum of (Bytes Sent) limit to (100)
VPCs running selected service	client_service:*	vpc_id	ungrouped traffic	sum of (Bytes Sent) limit to (100)
Availability zones running selected service	client_service:*	availability-zone	ungrouped traffic	sum of (Bytes Sent) limit to (100)
Regions running selected service	client_service:*	region	ungrouped traffic	sum of (Bytes Sent) limit to (100)

3. INFRASTRUCTURE TOP TALKERS & NETWORK METRICS

3.1 Host top network talkers

This section provides the top talkers & associated network metrics of top talkers of the host(s) running your selected service to identify if there are network issues at the host level.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top hosts downstream of selected service	client_service:*	ungrouped traffic	host	sum of (Bytes Sent) limit to (100)
Latency between selected service and downstream hosts	client_service:*	ungrouped traffic	host	avg of (TCP Latency) limit to (100)
Retransmits between selected service and downstream hosts	client_service:*	ungrouped traffic	host	sum of (TCP Retransmits) limit to (100)
TCP refusals between selected service and downstream hosts	client_service:*	ungrouped traffic	host	sum of (TCP Refusals) limit to (100)

3.2 Service top network talkers

This section provides the top talkers & associated network metrics of top talkers of your selected service to identify if there are network issues at the service level.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top services downstream of selected service	client_service:*	ungrouped traffic	service	sum of (Bytes Sent) limit to (100)
Latency between selected service and downstream services	client_service:*	ungrouped traffic	service	avg of (TCP Latency) limit to (100)
Retransmits between selected service and downstream services	client_service:*	ungrouped traffic	service	sum of (TCP Retransmits) limit to (100)
TCP refusals between selected service and downstream services	client_service:*	ungrouped traffic	service	sum of (TCP Refusals) limit to (100)

3.3 Availability zone top network talkers

This section provides the top talkers & associated network metrics of top talkers of the availability zone(s) running your selected service to identify if there are network issues at the availability zone level.

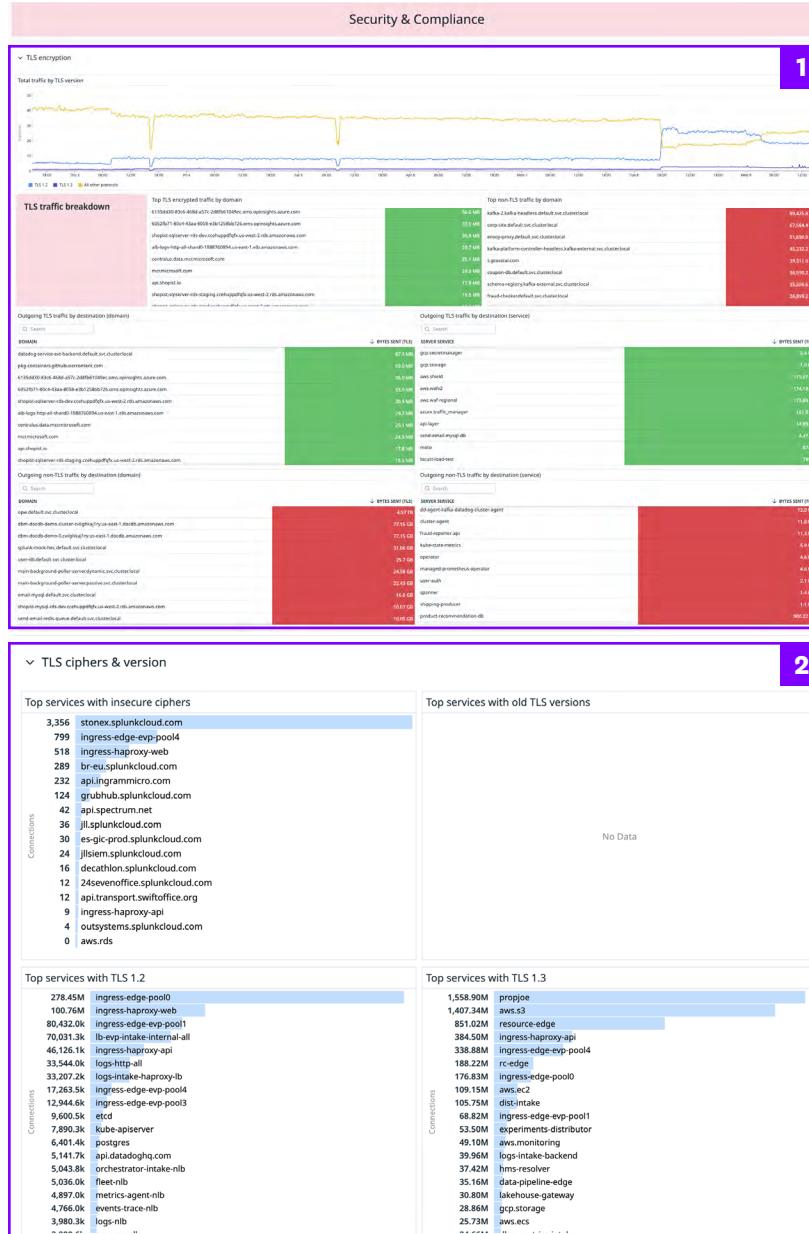
QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top AZs downstream of selected service	client_service:*	ungrouped traffic	availability-zone	sum of (Bytes Sent) limit to (100)
Latency between selected service and downstream AZs	client_service:*	ungrouped traffic	availability-zone	avg of (TCP Latency) limit to (100)
Retransmits between selected service and downstream AZs	client_service:*	ungrouped traffic	availability-zone	sum of (TCP Retransmits) limit to (100)
TCP refusals between selected service and downstream AZs	client_service:*	ungrouped traffic	availability-zone	sum of (TCP Refusals) limit to (100)

4. DNS TRAFFIC

This section provides top DNS queries by DNS metrics like requests, failures, timeouts, or NXDOMAIN errors.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top DNS queries by DNS requests	client_service:*	service	network.dns_query	sum of (DNS Requests) limit to (100)
Top DNS queries by NXDOMAIN errors	client_service:*	service	network.dns_query	sum of (NXDOMAIN errors) limit to (100)
Top DNS queries by DNS failures	client_service:*	service	network.dns_query	sum of (DNS Failures) limit to (100)
Top DNS queries by DNS timeouts	client_service:*	service	network.dns_query	sum of (DNS Timeouts) limit to (100)

Cloud Network Monitoring Use Cases



1. TLS ENCRYPTION

This section provides visibility into top encrypted and non-encrypted TLS traffic by domain and service.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Total traffic by TLS version (version 1.2)	tls_version:tls_1.2	ungrouped traffic	ungrouped traffic	sum of (Bytes Sent)
Total traffic by TLS version (version 1.3)	tls_version:tls_1.3	ungrouped traffic	ungrouped traffic	sum of (Bytes Sent)
Total traffic by TLS version (all other versions)	-tls_version:tls_1.2 tls_version:tls_1.3 tls_encrypted:true	ungrouped traffic	ungrouped traffic	sum of (Bytes Sent)
Top TLS encrypted traffic by domain	client_service:* -server_service:datadog-agent tls_encrypted:true	ungrouped traffic	domain	sum of (Bytes Sent) limit to (100)
Top non-TLS traffic by domain	client_service:* -server_service:datadog-agent tls_encrypted:false	ungrouped traffic	domain	sum of (Bytes Sent) limit to (100)
Outgoing TLS traffic by destination (domain)	client_service:* -server_service:datadog-agent tls_encrypted:true	ungrouped traffic	domain	sum of (Bytes Sent) limit to (100)
Outgoing TLS traffic by destination (service)	client_service:* -server_service:datadog-agent tls_encrypted:true	ungrouped traffic	service	sum of (Bytes Sent) limit to (100)
Outgoing non-TLS traffic by destination (domain)	client_service:* -server_service:datadog-agent tls_encrypted:false	ungrouped traffic	domain	sum of (Bytes Sent) limit to (100)
Outgoing non-TLS traffic by destination (service)	client_service:* -server_service:datadog-agent tls_encrypted:false	ungrouped traffic	service	sum of (Bytes Sent) limit to (100)

2. TLS CIPHERS & VERSION

This section provides visibility into services running non-secure TLS cipher suites and versions.

QUERY DESCRIPTION	QUERY	GROUP BY - CLIENT	GROUP BY - SERVER	MEASURE
Top services with insecure ciphers	tls_cipher_insecure:true	ungrouped traffic	service	sum of (TCP Established Connections) limit to (1000)
Top services with old TLS versions	tls_version:(tls_1.0 OR tls_1.1)	ungrouped traffic	service	sum of (TCP Established Connections) limit to (1000)
Top services with TLS 1.2	tls_version:tls_1.2	ungrouped traffic	service	sum of (TCP Established Connections) limit to (1000)
Top services with TLS 1.3	tls_version:tls_1.3	ungrouped traffic	service	sum of (TCP Established Connections) limit to (1000)

Useful Links

- [Cloud Network Monitoring Docs](#)
- [Network Path Monitoring Blog](#)

Datadog Cloud Network Monitoring

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