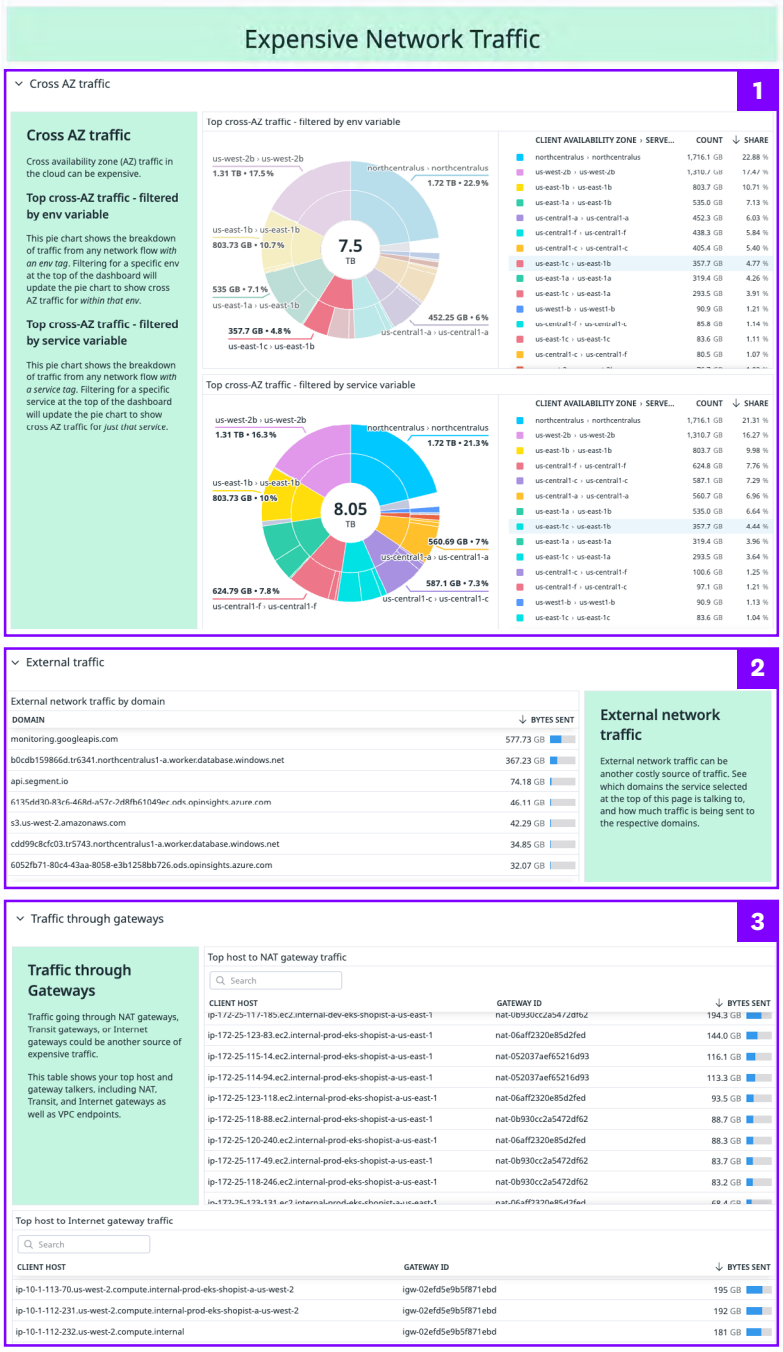
Cloud Network Monitoring Use Cases



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)`

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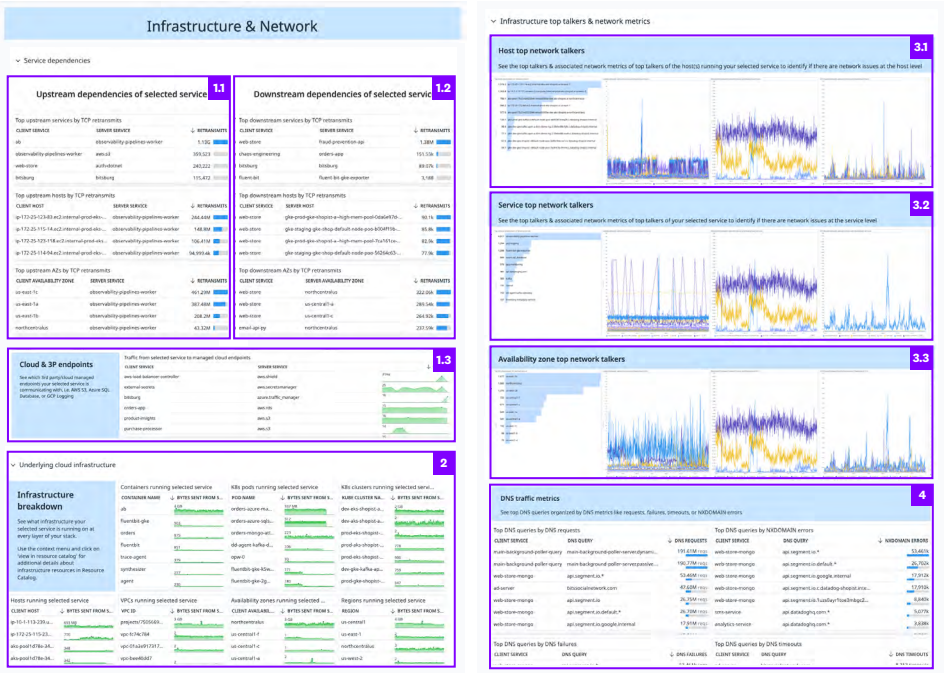

1. SERVICE DEPENDENCIES

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 Refusals) limit to (100)`
Top downstream hosts by TCP retransmits	`client_service:* (client_env:* OR server_env:*)`	`service`	`host`	`sum of (TCP Refusals) limit to (100)`
Top downstream AZs by TCP retransmits	`client_service:* (client_env:* OR server_env:*)`	`service`	`availability-zone`	`sum of (TCP Refusals) limit to (100)`
Top downstream regions by TCP retransmits	`client_service:* (client_env:* OR server_env:*)`	`service`	`region`	`sum of (TCP Refusals) 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)`
Restransmits 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)`
Restransmits 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 Requets) 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 visbility 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_1.3 -tls_version:tls_1.2 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 visbility 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 Estabilished 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 Estabilished Connections) limit to (1000)`
Top services with TLS 1.2	`tls_version:tls_1.2`	`ungrouped traffic`	`service`	`sum of (TCP Estabilished Connections) limit to (1000)`
Top services with TLS 1.3	`tls_version:tls_1.3`	`ungrouped traffic`	`service`	`sum of (TCP Estabilished Connections) limit to (1000)`

Useful Links

- Cloud Network Monitoring Docs
- Network Path Monitoring Blog