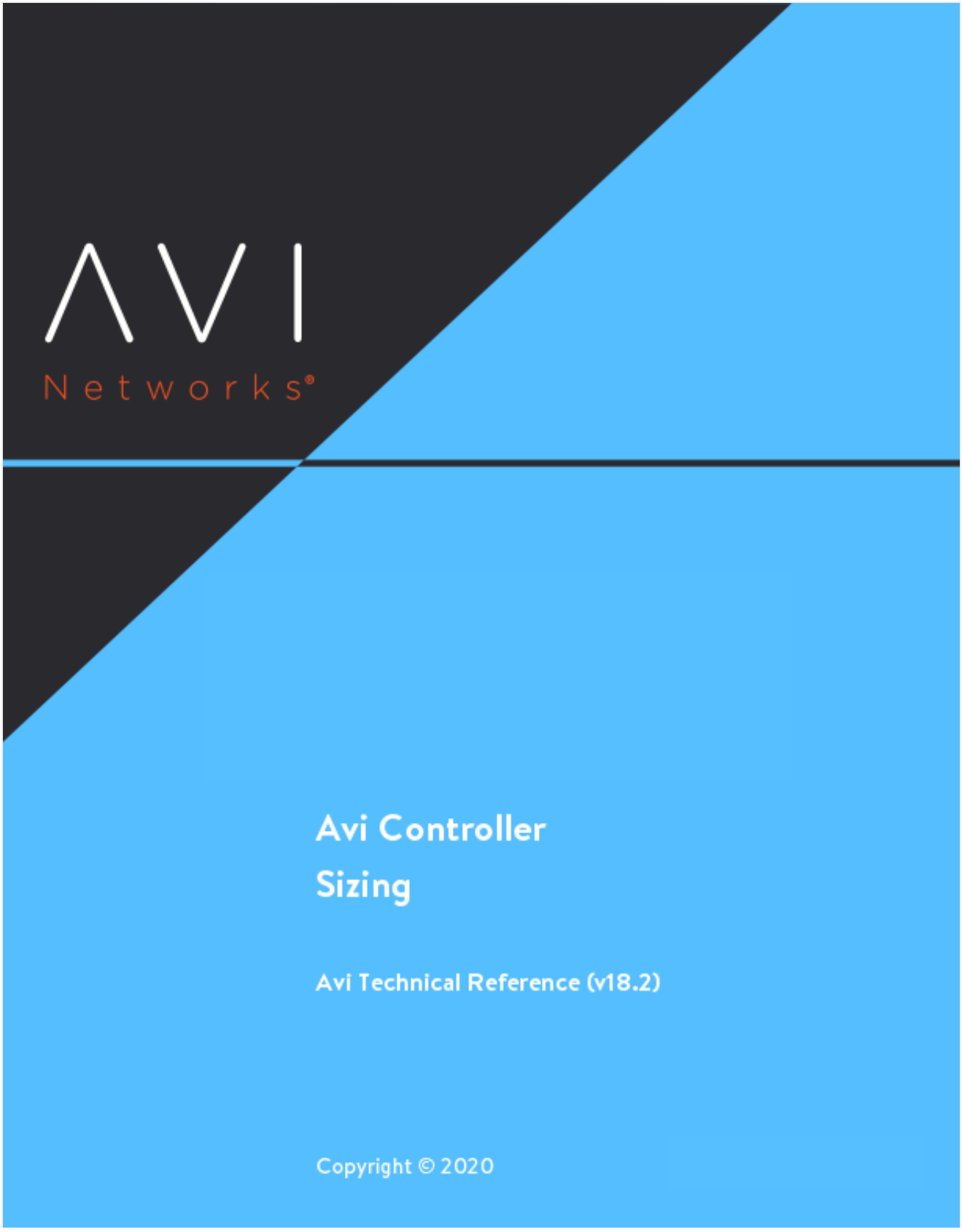

Avi Controller Sizing

Avi Technical Reference (v18.2)

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Avi Controller Sizing

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Overview

This guide explains the system capacity of the Avi Controller.

Specifying System Capacity of Avi Controller

During deployment of an Avi Controller, the system capacity of the Avi Controller can be specified based on allocations of the following system resources:

- CPUs
- Memory (RAM)
- Disk

The amount of these resources allocated to an Avi Controller have a direct impact on its performance.

The following table lists recommended allocations for each type of deployment:

Deployment Type	Node Count	Recommended Allocations		
		CPU	Memory	Disk
Demo / Customer Eval	1	8	24 GB	128 GB
Production	3	See the following: CPU/Memory Allocation Drive Allocation		

In demonstration and deployments, a single Avi Controller is adequate and is used for all control-plane activities and workflows, as well as analytics.

In a production deployment, a 3-node cluster is recommended. In a 3-node Avi Controller cluster, 1 Avi Controller is the leader Avi and is used for control-plane activities and workflows. The other 2 Avi Controllers are followers. The follower Avi Controller nodes are used for analytics. The follower Avi Controller nodes also provide backup in case the leader Avi Controller fails.

The following sections provide specific allocation recommendations. The recommendations are designed to fit most use cases, but might not fit every conceivable deployment scenario.

Note: The *avicontroller.service* file is not updated automatically whenever CPU and memory allocation on the host is increased. Manual update of the *avicontroller.service* file required whenever these values are changed.

The parameter for changing CPU is *-cpu-quota*.

Allocating CPU/Memory

Avi Vantage uses the allocations of CPU and memory as follows:

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CPU/Memory Allocation	8 CPUs / 24 GB	16 CPUs / 32 GB	24 CPUs / 48 GB
Base processes	15 GB	20 GB	24 GB
Log analytics	9 GB	13 GB	24 GB
Virtual Service Scale	0-200	200-1000	1000-5000
Avi Service Engine (SE) Scale	0-100	100-200	200-250

The Avi Controller's base processes include dynamic processes and metrics collection and processing. The allocations shown here are based on assumptions of no more than 10 percent disk swapping and 25 percent disk margin.

Allocating Disk Capacity

The amount of disk capacity to allocate to an Avi Controller is calculated based on the following parameters: * the amount of disk capacity available on the Avi Controller * the number of virtual services to support.

Note the following:

- Starting with Avi Vantage version 18.2.6, the default Controller OVA template should be increased to 128 GB.
- Controllers in the same cluster should all have the same/similar disk capacity. Allocations of significantly different sizes should not be permitted for prolonged periods of time.

The following tables show recommended allocations based on each approach.

Allocating Disk based on available Disk Capacity

The disk space allocated to an Avi Controller that is not used for base processes or analytics is used as follows:

- Logs: 70 percent of the disk that is not used for base processes or analytics.
- Metrics: the other 30 percent that is not used for base processes or analytics.

Disk Allocation based on Disk Space	128 GB	256 GB	512 GB	1 TB
Log analytics (70%)	56 GB	144 GB	328 GB	672 GB
Metrics (30%)	24 GB	64 GB	128 GB	288 GB
Base Processes	48 GB	48 GB	56 GB	64 GB

Disk drive quality impacts analytics performance and size:

- Traffic logs are deleted as the disk drive fills up.
- Metrics tables are deleted based on the archival scheme:
  - Realtime: deleted after 1 hour
  - 5-minute intervals: deleted after 1 day
  - 1-hour intervals: deleted after 1 week
  - 1-day intervals: deleted after 1 year

If the drive fills up, then current metrics tables are deleted to make room for new data.

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Allocating Disk based on Number of Virtual Services

Disk allocation based on VS count	Log analytics without full logs	Log analytics with full logs	Metrics	Base processes	Total (without full logs)
100 VS	16 GB	128 GB	16 GB	48 GB	80 GB
1,000 VS (100k transactions / year)	128 GB	1 TB	32 GB	56 GB	216 GB
5,000 VS	512 GB	Not sptd	160 GB	64 GB	736 GB

Assumptions and Sizing Data

The size recommendations shown in the table are based on the following operational assumptions:

- DDoS attacks are less than 1 percent of the traffic.
- Significant logs are no more than 10 percent of total logs. (This means 90 percent of the transactions are good and result only in non-significant logs.)
- Log analytics require about 10 kB disk space per log entry, i.e., 10 GB of disk space for 1 million log entries.
- Metrics and other analytics processing requires about 32 MB per virtual service. Client insights require additional drive capacity.

Note: A transaction is a single TCP or UDP connection (layer 4), or a single request-response exchange (layer 7). Traffic volume of 100,000 transactions per year is probably low for an e-commerce site but is applicable to most other types of applications.

Additional Information

FAQ on Avi Controller cluster.

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