

Citrix SCOM Management Pack for NetScaler Performance Overview



Software version: 1.15

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This document is designed to help you understand scalability, resource consumption, and performance of Citrix SCOM Management Pack for NetScaler (**NetScaler Management Pack, the product**). It also lists average resource consumption of the NetScaler Management Pack Agent (MPNSMonitorSvc) and the Microsoft System Center Operations Manager (**SCOM**) agent (HealthService), as measured in an environment with the specified NetScaler and SCOM configurations.

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Section 1: General and scalability aspects

Generally speaking, NetScaler Management Pack consists of two parts:

- The part installed on the SCOM management server computer
- NetScaler Management Pack Agent

The SCOM management server-side part

This part is a collection of management packs that include discoveries, monitors, rules, and tasks. From the compute and memory perspectives, this part does not significantly add to the basic resource requirements of SCOM itself. It is neither resource-intensive in terms of storage requirements of the SCOM reporting data warehouse database. For these reasons, it is expected that you will rarely want to scale it.

NetScaler Management Pack Agent

Performance and resource consumption of NetScaler Management Pack Agent both primarily depend on the size of your Citrix NetScaler (**NetScaler**) environment. The product's Agent can be scaled up by using a hosting SCOM resource pool member with a better hardware configuration.

Section 2: Configuration specifications

All figures in this document are valid for environments that:

- Match the documented configuration specifications for NetScaler and SCOM
- Use the default configuration of management packs in terms of which rules and monitors are enabled (this applies to management packs included in NetScaler Management Pack and management packs bundled with SCOM)
- Use the default configuration of SCOM management servers and SCOM agents, without fine-tuning or any special adjustments

Note Factors such as different hardware specifications and condition of your environment may cause divergence of your observed values from the documented values.

Citrix NetScaler configuration specification

Specification item	Value
Software version	Citrix NetScaler 11.0 and 10.5
Virtualization platform	XenServer 6.5
Instantiated packet engines (NetScaler 11.0)	1
Instantiated packet engines (NetScaler 10.5)	1
Appliance type	NetScaler VPX
NetScaler devices in the monitored environment	2

Microsoft System Center Operations Manager configuration specification

With this configuration, the SCOM database and data warehouse server is deployed outside the SCOM management server computer.

Resource pool configuration	
Specification item	Value
SCOM resource pools	1
SCOM management servers in the resource pool	1

Computer: SCOM management server	
Specification item	Value
Compute	four virtual CPUs; CPU clock speed of 2.67 GHz
Memory	8 GB of RAM
Software version	Microsoft System Center Operations Manager 2012 R2

Computer: SCOM database and data warehouse server	
Specification item	Value
Compute	two virtual CPUs; CPU clock speed of 2.67 GHz
Memory	16 GB of RAM
Software version	Microsoft SQL Server 2014

Section 3: Monitoring ability

The following table lists the lab set-up in which NetScaler Management Pack was successfully validated with the specified NetScaler and SCOM configurations. NITRO API was used for monitoring during which data was gathered at the following intervals: 15 minutes for rules, 5 minutes for monitors, and 4 hours for object discovery.

Maximum number of monitored objects (for the specified configuration)

Item	Value
NetScaler objects discovered and monitored by NetScaler Management Pack ¹	app. 14,000

¹ Refers to the total number of objects of any type in either validated environment (with one or two appliances). For examples of object type distribution, see the following table.

Object type distribution examples (with load balancing)

	Example A	Example B
Object type ²	Value	Value
Appliances	1	2
Virtual servers	3,750	4,550
Services	1,500	1,000
Service groups	4,350	3,850
Other object types ³	app. 3,850	app. 4,600

² This table lists examples of object types that are monitored by NetScaler Management Pack. Object type distribution examples A and B explain how the maximum number of monitored objects is calculated.

³ Examples of other object types are Features, Global Settings, HTTP Settings, Interface, IPv4, Licenses, Memory Pool, Modes, Other Settings, SSL Certificate, TCP Settings, Timeout Settings, Virtual LAN, Other Settings, and so on.

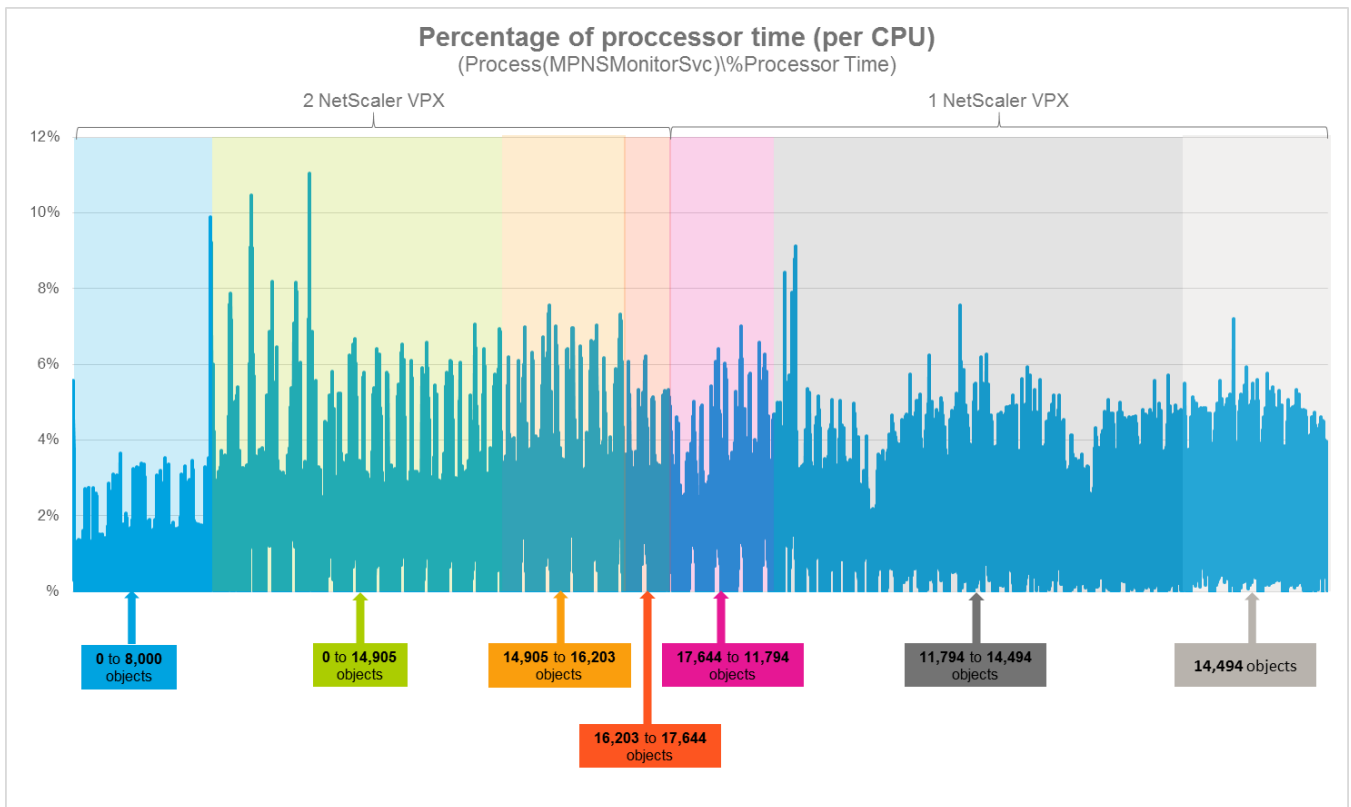
Section 4: Average resource consumption

Measuring spanned a period of 26 days and was performed on different validation sets. Windows Performance Monitor was used as the measuring tool. During validation, NetScaler objects were gradually (on a daily basis) added to the monitored environment.

Average consumption on a SCOM resource pool member (for app. 14,000 NetScaler objects)

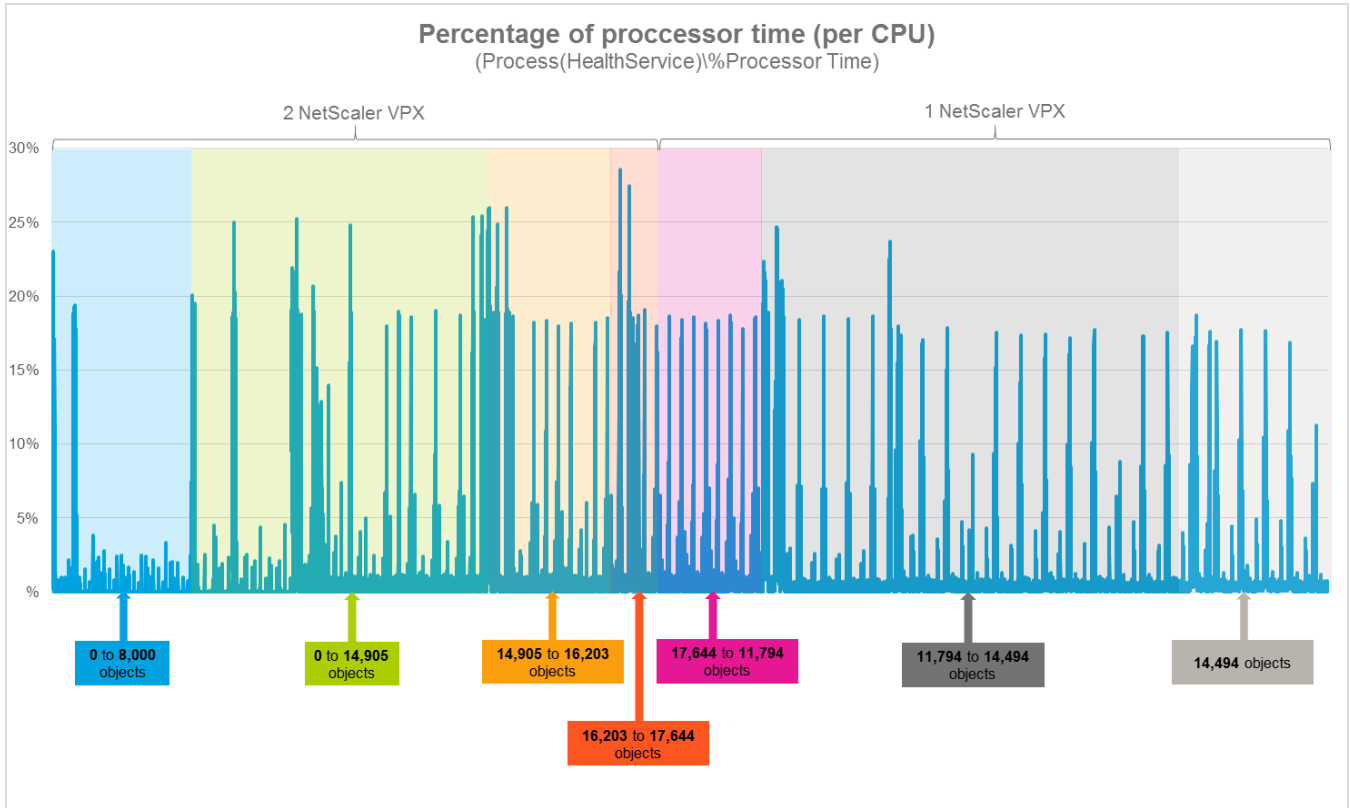
Item	Value
MPNSMonitorSvc percentage of processor time (per CPU)	1.19 %
HealthService percentage of processor time (per CPU)	1.18 %
MPNSMonitorSvc memory usage	331 MB
HealthService memory usage	659 MB

Figure 4.1 Percentage of processor time used by MPNSMonitorSvc through time, measured in seven different validation sets



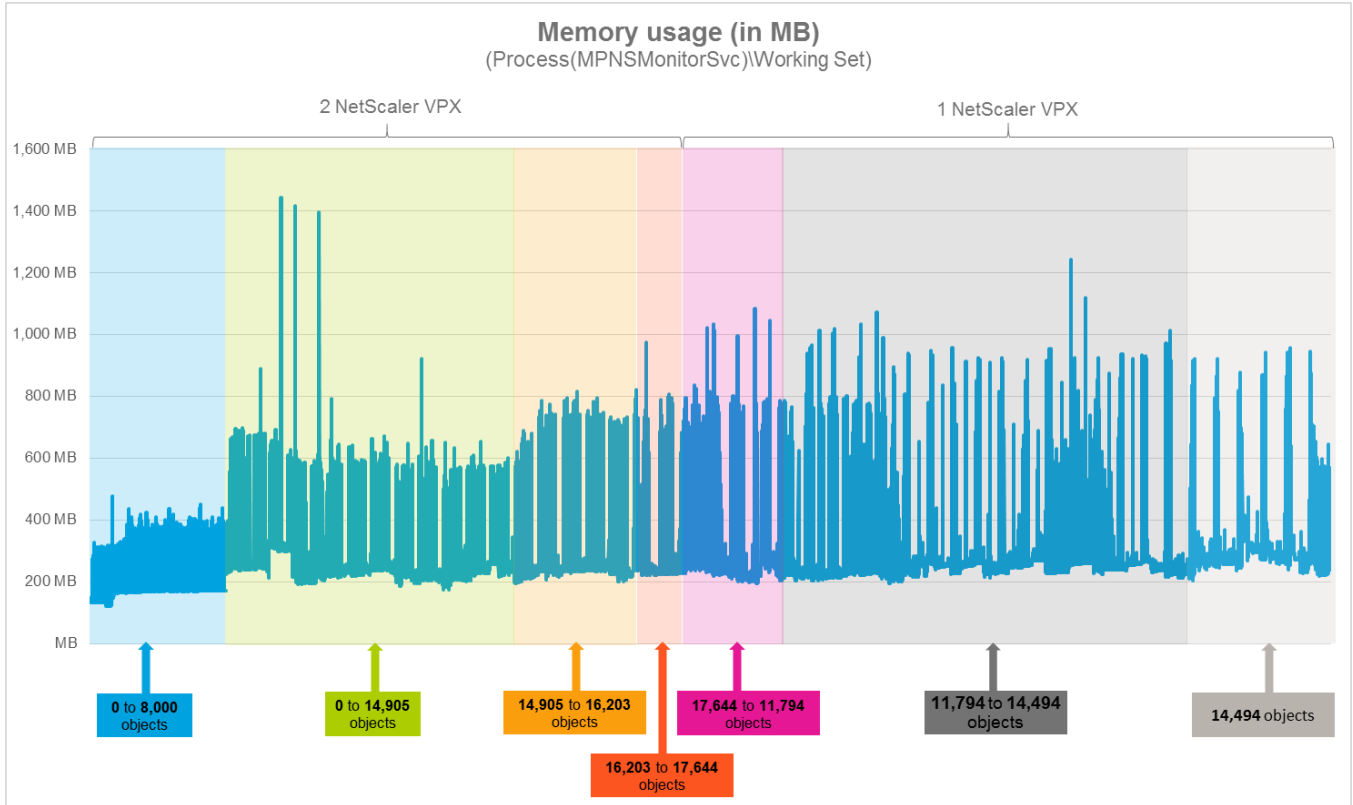
As figure 4.1 shows, adding NetScaler objects has no significant impact on the percentage of processor time used by NetScaler Management Pack Agent.

Figure 4.2 Percentage of processor time used by HealthService through time, measured in seven different validation sets



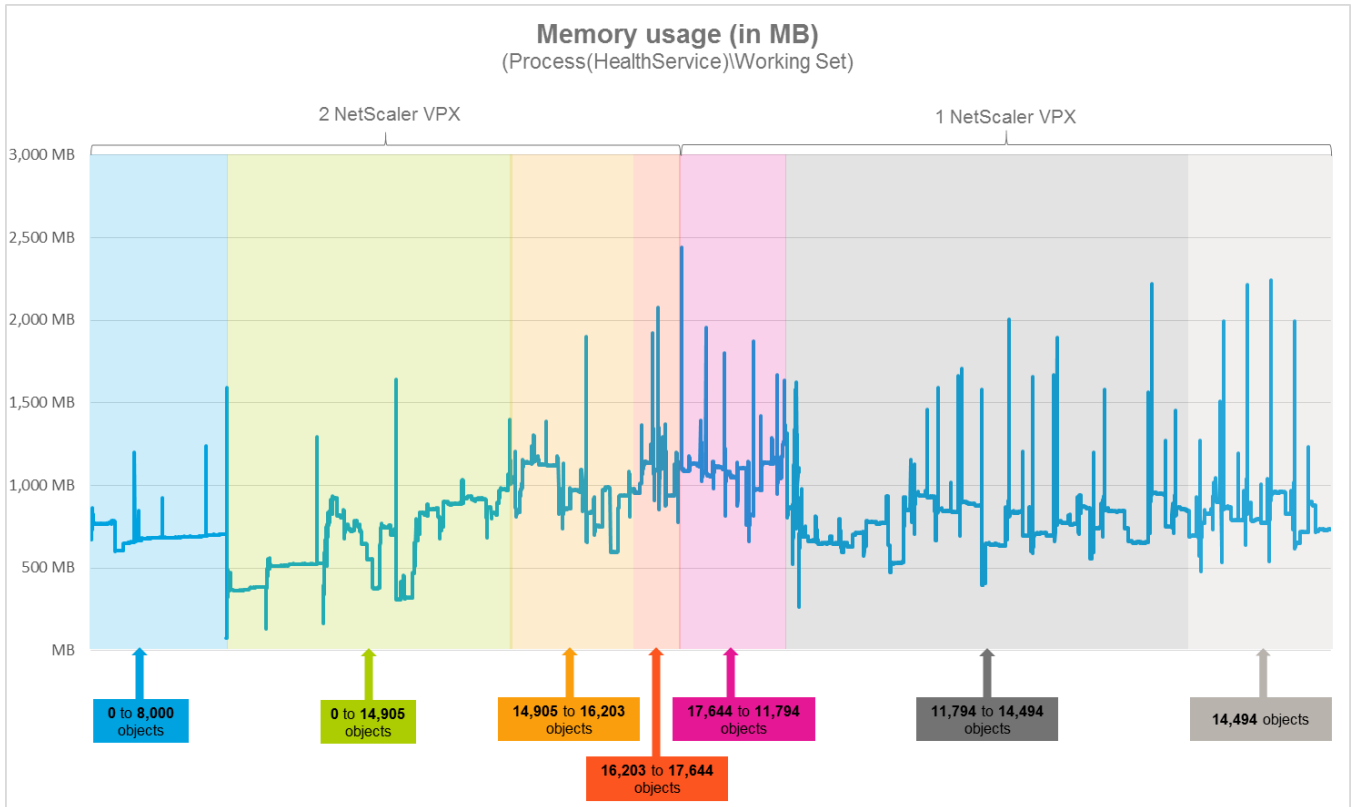
As figure 4.2 shows, addition of objects also does not influence the percentage of processor time used by the SCOM agent (Operations Manager Agent, Microsoft Monitoring Agent).

Figure 4.3 Memory usage of MPNSMonitorSvc through time, measured in seven different validation sets



As figure 4.3 shows, on the SCOM management server, there should be approximately 1.4 GB of physical memory available for the needs of the MPNSMonitorSvc service.

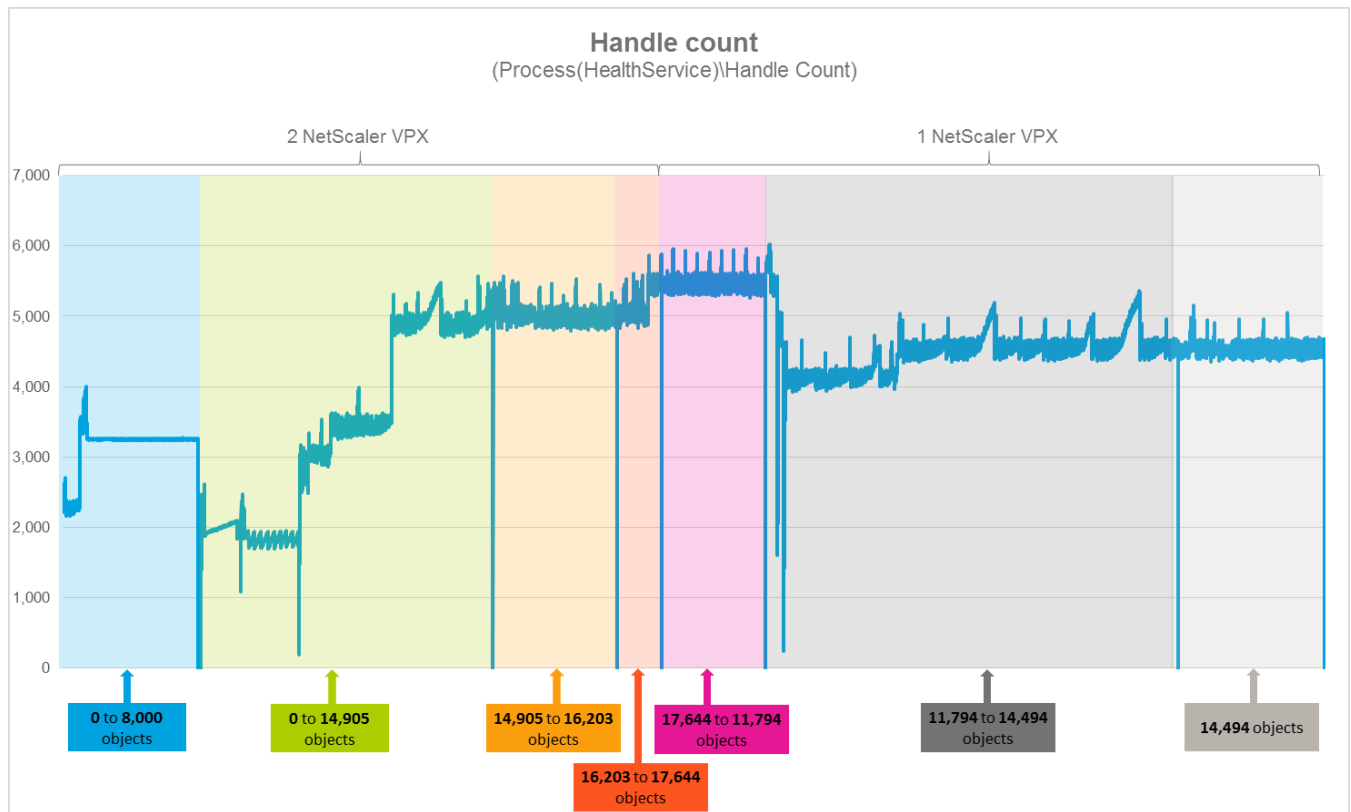
Figure 4.4 Memory usage of HealthService through time, measured in seven different validation sets



As figure 4.4 shows, on the SCOM management server, there should be approximately 1.6 GB of physical memory available for the needs of the HealthService service.

Detailed analysis of the sampled data revealed that NetScaler Management Pack had no significant impact on the compute and memory requirements for the SCOM management server computer.

Figure 4.5 Handle count of HealthService through time, measured in seven different validation sets



The data analysis also helped estimate potential load on the HealthService service during workflow execution on individual validation sets. The following table lists handle count averages for different validation sets.

Number of objects	From	0	0	14,905	16,203	17,644	11,794	14,494
	To	8,000	14,905	16,203	17,644	11,794	14,494	
Average handle count		3,143	3,392	5,014	5,198	5,472	4,491	4,538

For validation sets that contained more than 14,000 NetScaler objects, the HealthService service started dropping data. This was caused by a very large amount of workflows on the SCOM management server computer that HealthService could not process. Tables 4.6 and 4.7 show the number of dropped data batches and data items for different validation sets.

Figure 4.6 Data batches dropped by HealthService through time, measured in seven different validation sets

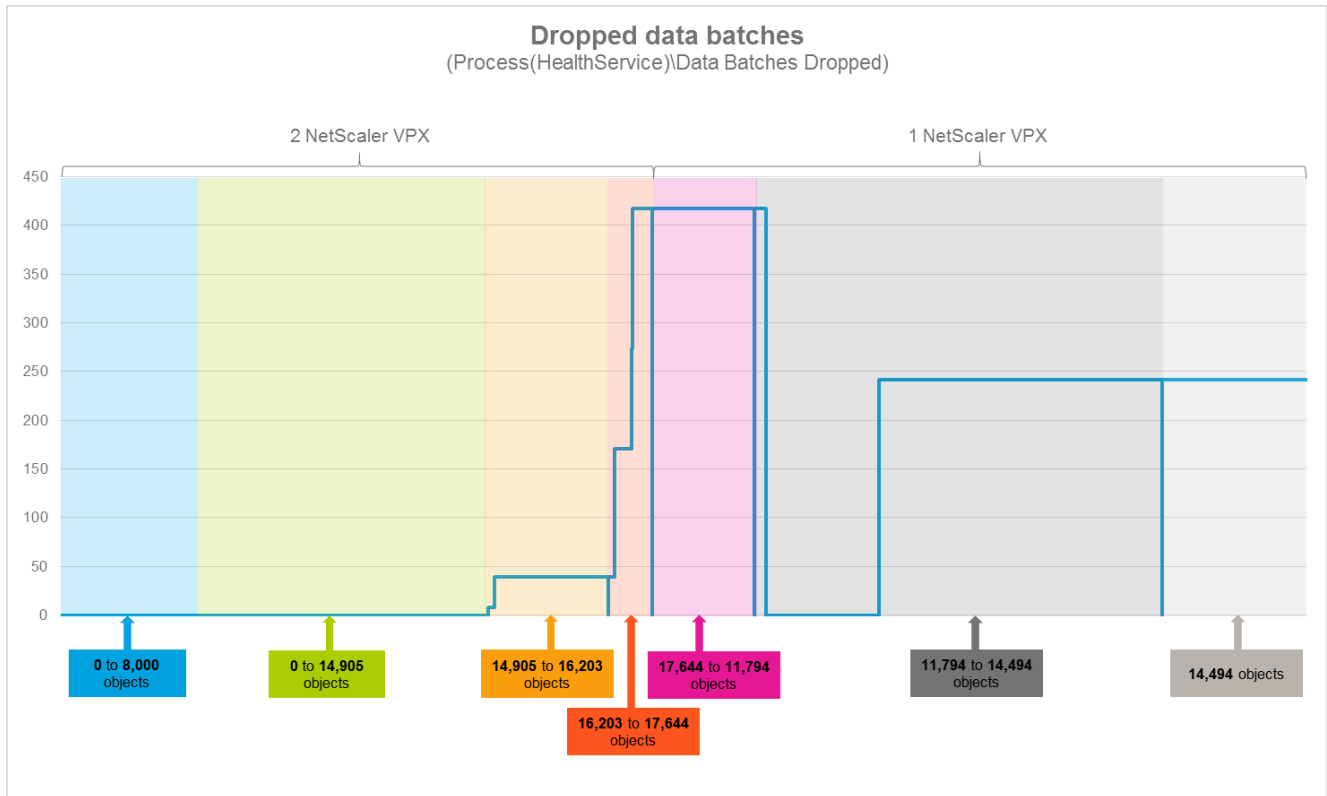


Figure 4.7 Data items dropped by HealthService through time, measured in seven different validation sets

