



UtilityIQ 6.0 Sizing Guide

UtilityIQ

Han Communications Manager (HAN)

Gateway and Network Center

Outage Detection System (ODS)

SensorIQ

Shared Services Components (SSC)

GridScape

Distributed Intelligence Network Adapter (DINA)

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New in this document

Table 1 New in this document

Revision	Date	Description
REV 000	June 20, 2025	First date of publication.

1

Introduction

This document includes sizing information for UtilityIQ 6.0 and Shared Services Components (SSC) 2.11 in Non-High Availability (HA) deployment mode. It also includes sizing on other supported applications like SensorIQ, ODS, Network Center, and HCM.

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UtilityIQ 6.0 sizing requirement

Micro size environment

Table 2 Up to 3000 endpoints

Index	Host CPU	Host memory	SAN storage reqs. (GB)	SAN IOPS	App	XXM/XMS	
1	4 CPU	48 GB RAM	300 GB	400	TIBCO	1200 MB	/ur/n/thirdparty/tibco/CURRENT/tibco/cfgmgmt/ems/data/tibemsd.conf max_msg_memory = 1200MB
					DMS	1 GB	
					GMR	4 GB	with Zing ZVM
					MT	4 GB	with Zing ZVM
					FWU	2 GB	
					MPC	2 GB	
					MPCWSROUTE	1 GB	
					REGISTRATIONHANDLER	1 GB	
					CAAS	512M	
					TRAPROUTER	4 GB	with Zing ZVM
					AMMWSROUTE	1 GB	
					AMMJMSROUTE	1 GB	
					DATATRANSFER	4 GB	
					SSNEFProcessor	1 GB	
					ZST	2 GB	

Table 2 Up to 3000 endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs. (GB)	SAN IOPS	App	XXM/XMS	
					CfgMgr	0	
					Overhead	10 GB	
					Free	8.5 GB	

Water instance

Table 3 Up to 1000 water meters

Index	Host CPU	Host memory	SAN storage reqs. (GB)	SAN IOPS	App	XXM/XMS	
1	4 CPU	48 GB RAM	300 GB	400	TIBCO	1200 MB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgmt/ems/data/tibemsd.conf max_msg_memory = 1200MB
					DMS	1 GB	
					GMR	4 GB	with Zing ZVM
					MT	4 GB	with Zing ZVM
					FWU	2 GB	
					MPC	2 GB	
					MPCWSROUTE	1 GB	
					REGISTRATIONHANDLER	1 GB	
					CAAS	512M	
					TRAPROUTER	4 GB	with Zing ZVM
					AMMWSROUTE	1 GB	
					AMMJMSROUTE	1 GB	
					DATATRANSFER	4 GB	
					SSNEFProcessor	1 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	8.5 GB	

AMMWSPProxy host

Table 4 AMMWSPProxy

Index	Host CPU	Host Memory	SAN storage reqs (GB)	SAN IOPS	App	XX/XMS	
0	4 CPU	16 GB RAM	200 GB	400	DATATRANSFER	4 GB	(This host needs to be on DMZ)
					AMMWSPROXY	2 GB	
					CfgMgr	0	

100k AMI Essentials all-in-one

Table 5 100K endpoints

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
0	12 CPU	80 GB RAM	300	400	MT	4 GB	
					GMR	4 GB	
					Registrar	1 GB	
					FWU	2 GB	
					CAAS	512 MB	
					MPC	2 GB	
					DLCA	512 MB	
					MPCWSROUTE	1 GB	
					AMMWROUTE	1 GB	
					AMMJMSROUTE	1 GB	
					Traprouter	1200 MB	
					ssni-agent-forwarder	4 GB	
					TMB	1 GB	

Table 5 100K endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
					TIBCO	1200 MB	
					DMS	1 GB	
					Elasticsearch	1 GB	
					FSU-SAM	1 GB	
					Cryptkeeper	2 GB	
					Gateway	2 GB	
					RegistrationHandler	1 GB	
					NMS Elasticsearch	4 GB	
					ammmultispeak	4 GB	
					msiawroute	4 GB	
					cmepeporter	2 GB	
					DataTransfer	4 GB	
					DINA	4 GB	
					DICD	1 GB	
					DINAShim	1 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	16 GB	57.5 GB total

Table 5 100K endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
					Free	6.5 GB	

Small environment

Table 6 200K endpoints

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
Application Servers							
0	8 CPU	72 GB RAM	300	400	MT	4 GB	-Xms4g -Xmx4g with Zing ZVM
					GMR	7 GB	-Xms7g -Xmx7g with Zing ZVM
					Registrar	4 GB	
					FWU	8 GB	
					CAAS	512 MB	
					MPC	2 GB	
					DLCA	512 MB	
					MPCWSROUTE	1 GB	
					AMMWSROUTE	1 GB	
					AMMJMSROUTE	1 GB	
					Traprouter	1200 MB	-Xms1200 MB -Xmx1200 MB with Zing ZVM
						4 GB	
					TMB	1 GB	
					TIBCO	1200 MB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgmt/ems/data/tibemsd.

Table 6 200K endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
							conf max_msg_memory = 1200MB
					DMS	1 GB	
					Elasticsearch	3 GB	DMS_ES_HEAP_SIZE in dms.properties
					FSU-SAM	1 GB	
					Cryptkeeper	2 GB	
					Gateway	2 GB	An important factor is the number of AP's or micro AP's. (50 APs with average queue depth of 10k, 500 byte payload) GW 1.4 with Zing JVM
					RegistrationHandler	8 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	2 GB	

Table 6 200K endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
1	4 CPU	16 GB RAM	300	400	SSN Agent	4 GB	
						1024 MB	
					bocoapclient	512 MB	
					Network Center (CEP NMS)	2 GB	
					CEP ES	128 MB	
					NMS Elasticsearch	4 GB	
					CfgMgr	0	
					Overhead	3.5 GB	
					Free	1 GB	
2	2 CPU	16 GB RAM	100	400	DRI	N/A (Django app)	(This host needs to be on DMZ) It uses MySQL and that can be installed on the same host.
					ZTP	512 MB	
					HiveMQ (MQTT Broker) HiveMQSSNCFG HiveMQPlugins	4 GB	*For IMU 500T (up to 50k devices)
					MTR	4 GB	
					CfgMgr	0	
					Overhead	3.5 GB	
					Free	4 GB	

Table 6 200K endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
3	4 CPU	32 GB RAM	200	400	HCM	16 GB	Up to 100k HAN devices
					NEC	4 GB	
					HCMWSROUTE	1 GB	-Xms1024m -Xmx1024m
					HCMJMSROUTE	1 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	3.5 GB	
4	4 CPU	32 GB RAM	200	400	SIQ	10 GB	-Xms10g -Xmx10g
					SIQWSROUTE	1 GB	
					Data Transfer	4 GB	(Optional. Required if customer needs to convert to csv format)
					ODS	8 GB	
					ODSWSROUTE	1 GB	
					ODSJMSROUTE	2 GB	
					CfgMgr	0	
					Overhead	6 GB	
					Free	0 GB	

Table 6 200K endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
8	8 CPU	32 GB RAM	100	100	AMMMultispeak	4 GB	
					MSIAWSRoute	4 GB	
					QRService	1 GB	
					UAAExporter	1 GB	
					CMExporter	4 GB	
					DataArrivedExporter	4 GB	
					MDIImporter	4 GB	
					CREFExportAdapter	4 GB	
					CfgMgr	0	
					Overhead	6.4 GB	
					Free	0 GB	
7	4 CPU	32 GB RAM	200	400	DINA	10 GB	
					DICD	1 GB	
					DINA-SHIM	1 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	13.5 GB	
N/A	4 CPU	16 GB RAM	200	200	NAN_ MANAGEMENT HOST		All Prod environments will require a dedicated NAN Management host for NAN security sweeps, NAN troubleshooting, NOC AP acceptance, and automated remediation. NAN management hosts to be used by SRO, NOC, DA Ops, CS, and TAC.
6	4 CPU	32 GB RAM	100	100	Gridscape	4 GB	
					CfgMgr	0	

Table 6 200K endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP or SW comments
Database Server							
N/A	4 CPU	32 GB RAM	850	500	Oracle RDBS Enterprise Edition 19c		
Nodesim Server							
5	4 CPU	16 GB RAM	200	100	NODESIM		
Management Server (applies to Managed Appliance only) MA-MGMT							
N/A	26 CPU	84 GB RAM	800	300	Management components		The management host is there to be ■ DNS Server ■ Virtualization host/management ■ Active Directory

Water Instance

Table 7 Up to 100k water meters

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XMS	
0	8 CPU	64 GB RAM	300 GB	400	TIBCO	1200 MB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgmt/ems/data/tibemsd.conf max_msg_memory = 1200MB
					DMS	1 GB	
					GMR	7 GB	with Zing ZVM
					MT	4 GB	with Zing ZVM
					FWU	8 GB	
					MPC	2 GB	
					MPCWSROUTE	1 GB	
					REGISTRATIONHANDLER	1 GB	
					CAAS	512M	
					TRAPROUTER	4 GB	with Zing ZVM
					AMMWSROUTE	1 GB	
					AMMJMSROUTE	1 GB	
					DATATRANSFER	4 GB	
					SSNEFProcessor	1 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	7.5 GB	

AMMWSProxy Host

Table 8 AMMWSProxy host

Index	Host CPU	Host memory	SA storage reqs. (GB)	SAN IOPS	App	XXM/XMS	
0	8 CPU	32 GB RAM	200 GB	400	DATATRANSFER	4 GB	(This host needs to be on DMZ)
					AMMWSPROXY	2 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	19.5 GB	

Medium size environment

Table 9 200K-2.5 million endpoints

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
Application Servers							
0	8 CPU	48 GB RAM	500	800	MT	18 GB	-Xms18g -Xmx18g with Zing ZVM
					CAAS	512 MB	-Xms512M -Xmx512M
					AMMWSROUTE	2 GB	-Xms2048m -Xmx2048m
					AMMJMSROUTE	2 GB	-Xms2048m -Xmx2048m
						6 GB	
					Cryptkeeper	4 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	3.5 GB	

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
1	8 CPU	72 GB RAM	500	800	GMR	54 GB	-Xms54g -Xmx54g with Zing ZVM
					ZST	2 GB	
					CfgMgr	0	
					Overhead	16 GB	
					Free	0 GB	
2	4 CPU	32 GB RAM	300	150	Registrar	8 GB	-Xms8g -Xmx8g
					DLCA	512 MB	
					TMB	4 GB	-Xms4g -Xmx4g
					RegistrationHandler	8 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	9 GB	
3	4 CPU	16 GB RAM	200	1000	TIBCO	1200 MB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgmt/ems/data/tibemsd.conf max_msg_memory = 1200 MB (max_msg_memory = 5GB with SIQ 3.1)
					Traprouter	4 GB	with Zing ZVM
					ZST	2 GB	
					CfgMgr	0	
					Overhead	4 GB	
					Free	5 GB	

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
4	4 CPU	32 GB RAM	200	250	HiveMQ (MQTT Broker) HiveMQSSNCFG HiveMQPlugins	10 GB	(This host needs to be on DMZ) For IMU 500T (Up to 50k devices) Need 24 GB for up to 500k IMU 500T devices (VM host need to have 32 GB RAM)
					MTR	8 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	7.5 GB	
5	8 CPU	72 GB RAM	300	100	FWU	36 GB	Attach ZCU, SAM if no DRM (HCM) Need 36 GB memory to support up to 1M agent download job
					MPC	16 GB	
					MPCWSROUTE	2 GB	
					FSU-SAM	1 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	2 GB	
6	8 CPU	32 GB RAM	300	2,000	DMS	4 GB	-Xms4g -Xmx4g
					Elasticsearch	12 GB	DMS_ES_HEAP_SIZE in dms.properties
						6 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	3.5 GB	

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
7	2 CPU	16 GB RAM	300	200			
						1 GB	
					bocoapclient	512 MB	
					CfgMgr	0	
					Overhead	3.5 GB	
					Free	3 GB	
8	8 CPU	48 GB RAM	300	200	Gateway	24 GB	-Xms24g -Xmx24g Gateway will use more memory depending on number of AP queues. For medium size deployments, we assume 500 AP's. IO activity may be heavy if stats logging is enabled. Use the large scale IO as a guideline. GW 1.4 with Zing JVM
					ZST	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	12 GB	

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
9	8 CPU	32 GB RAM	500	1,000	Network Center (CEP NMS)	4 GB	Storage is based on these ConEd simulation (use the calculator for different conditions) : 2.5M endpoints, 4320 APs Gateway Metrics Collection Frequency = 1 minute CEPNMS_ES_DATA_RETENTION_IN_DAYS = 2 CEPNMS_ES_SNAPSHOT_DATA_RETENTION_IN_DAYS = 2 CEPNMS_ES_SNAPSHOT_RETENTION_IN_DAYS = 2 Two disk mounts are required ■ standard install ■ DATA directory
					CEP ES	1 GB	
					NMS Elasticsearch	16 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	4.5 GB	
10	4 CPU	32 GB RAM	200	100	SIQ (1)	24 GB	-Xms24g -Xmx24g
					SIQWSROUTE	1 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free		

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
11	4 CPU	32 GB RAM	200	100	SIQ (2)	24 GB	-Xms24g -Xmx24g
					Data Transfer	1 GB	(Optional. Required if customer needs to convert to csv format) *For Data Transfer 1.2, the heap size should be 8 GB, and the host RAM should be 48 GB instead
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	0	
12	4 CPU	32 GB RAM	200	100	SIQ (3)	24 GB	-Xms24g -Xmx24g
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	1.5 GB	
13	2 CPU	16 GB RAM	100	100	DRI	N/A (Django app)	(This host needs to be on the DMZ) It uses MySQL and that can be installed on the same host.
					ZTP	512 MB	
					CfgMgr	0	
					Overhead	3.5 GB	
					Free	N/A	

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
14	8 CPU	48 GB RAM	300	100	HCM	24 GB	Up to 200K HAN devices
					NEC	8 GB	
					HCMWSROUTE	1 GB	-Xms1024m -Xmx1024m
					HCMJMSROUTE	1 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	28 GB	
15	8 CPU	32 GB RAM	200	100	ODS (1)	12 GB	
					ODSWSROUTE	2 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	9.5 GB	
17	8 CPU	32 GB RAM	100	600	Gridscape	8 GB	
					Overhead	2 GB	
					Free	22 GB	
					CfgMgr	0	
18	8 CPU	32 GB RAM	200	100	ODS (2)	12 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
					Overhead	6.5 GB	
					Free	9.5 GB	
19	8 CPU	48 GB RAM	200	100	DINA (1)	24 GB	
					DICD	4 GB	set DICODEDEPLOYER_NOTIFICATION_NUMBEROFDEVICENOTIFICATIONPROCESSORTHREADS=40
					DINA-SHIM	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	8 GB	
20	8 CPU	48 GB RAM	200	100	DINA (2)	24 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	
21	8 CPU	48 GB RAM	200	100	DINA (3)	24 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
23	8 CPU	64 GB RAM	100	100	AMMMultispeak	8 GB	
					MSIAWSRoute	8 GB	
					QRService	8 GB	
					UAAExporter	8 GB	
					CMEExporter	8 GB	
					CREFExport Adapter	8 GB	
					CfgMgr	0	
					Overhead	13 GB	
					Free	3 GB	
N/A	4 CPU	16 GB RAM	200	200	NAN_MANAGEMENT HOST		All Prod environments will require a dedicated NAN Management host for NAN security sweeps, NAN troubleshooting, NOC AP acceptance, and automated remediation. NAN management hosts to be used by SRO, NOC, DA Ops, CS, and TAC.
Database Server							
N/A	16 CPU	128 GB RAM	4216	7500	Oracle RDBS Enterprise Edition 19c		
Nodesim Server							
16	4 CPU	64 GB RAM	200	100	NODESIM		For a more generic deployment simulation, up to 3 Nodesim instances running concurrently on the same host (1 for up to 2.5M electrical meters, 1 for up to 500k IMU 500T devices, and 1 for up to 100k water meters) For ConEd network simulation, we have 7 Nodesim instances running on the host (4 electrical meters, 1 water meters, 1 IMU300 meters, and 1 IMU500T meters), and that requires the host to have 8 CPU 148 GB RAM

Table 9 200K-2.5 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
Management server (applies to Managed Appliance only) MA-MGMT							
N/A	64 CPU	182 GB RAM	1500	3000	Management components		*Sysper doesn't have this host in scale test env. Sizing from 4.11 If it's a managed appliance, include the full host. If it's saas, we don't need it If it's a licensed deployment, the customer can figure out what they need from the management overhead – it shouldn't be much. The management host is there to be ■ DNS Server ■ Virtualization host/management ■ Active Directory

Water instance

Table 10 up to 500k water meters

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XMS	
0	8 CPU	48 GB RAM	300 GB	100	MT	18 GB	-Xms18g -Xmx18g with Zing ZVM
					RegistrationHandler	4 GB	
					CAAS	512M	-Xms512M -Xmx512M
					AMMWSROUTE	2 GB	-Xms2048m -Xmx2048m
					AMMJMSROUTE	2 GB	-Xms2048m -Xmx2048m
					ZST	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	5.5 GB	
1	8 CPU	72 GB RAM	300 GB	200	GMR	54 GB	-Xms54g -Xmx54g with Zing ZVM
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	0	

Table 10 up to 500k water meters (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XXS	
2	8 CPU	50 GB RAM	300 GB	1,000	DMS	4 GB	-Xms4g -Xmx4g
					Elasticsearch	12 GB	DMS_ES_HEAP_SIZE in dms.properties
					TIBCO	1200 MB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgmt/ems/data/tibemsd.conf max_msg_memory = 1200MB
					TRAPROUTER	4 GB	with Zing ZVM
					DATATRANSFER 1.2	8 GB	
					SSNEFProcessor	8 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	0	
3	8 CPU	32 GB RAM	200	100	FWU	16 GB	-Xms16g -Xmx16g
					MPC	8 GB	
					MPCWSROUTE	2 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	0	

AMMWSPProxy Host

Table 11 AMMWSPProxy host

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XM/XMS	
0	8 CPU	32 GB RAM	200 GB	400	DATATRANSFER 1.2	8 GB	(This host needs to be on DMZ)
					AMMWSPROXY	2 GB	
					Overhead	2 GB	
					Free	20 GB	
					CfgMgr	0	

Medium with High Frequency New Data Read (up to 2.5 Million Endpoints)

This environment is used when New Data Read schedule is set to 1 hour frequency. The meter configuration can support up to six LP1 billing channels at 15 minute intervals. LP2 and LP3 can be configured but should only be read infrequently and from a smaller set of devices. For example, troubleshooting voltage and instrumentation data from a few thousand devices.

Follow the Medium sizing guide and add the following host

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XM/XMS	
0	8 CPU	72 GB RAM	500 GB	800	GMR (2)	54 GB	-Xms54g - Xmx54g with Zing ZVM
					ZST	2 GB	
					CfgMgr	0 GB	
					Free	0 GB	
					Overhead	16 0	

Large deployments

Table 12 2.5-6 million endpoints

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
Application Servers							
0	8 CPU	76 GB RAM	500	800	MT	44 GB	-Xms44g -Xmx44g with Zing ZVM
					CAAS	512 MB	-Xms512M -Xmx512M
					AMMWSROUTE	2 GB	-Xms2048m -Xmx2048m
					AMMJMSROUTE	2 GB	-Xms2048m -Xmx2048m
						8 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	12 GB	
					Free	5 GB	
1	8 CPU	32 GB RAM	200	1,000	TIBCO EMS	10 GB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgt/ems/data/tibems d.conf max_msg_memory = 10GB (with SIQ 3.1) *increased host IOPS from 150 to 1,000 to support FPL trap load
					Traprouter	6 GB	with Zing ZVM
					Cryptkeeper	4 GB	moved from host 0
					CfgMgr	0	
					ZST	2 GB	
					Overhead	5 GB	
					Free	5 GB	
2	8 CPU	72 GB RAM	500	800	GMR (1)	54 GB	-Xms54g -Xmx54g

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
							with Zing ZVM
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 G	
					Free	0	
3	8 CPU	72 GB RAM	500	800	GMR (2)	54 GB	-Xms54g -Xmx54g with Zing ZVM (memory management reserve-at-config with ZST 5.21)
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	0	
4	8 CPU	66 GB RAM	200	150	Registrar	24 GB	-Xms24g -Xmx24g
					TMB	12 GB	-Xms12g -Xmx12g
					DLCA	512 MB	
					RegistrationHandler	8 GB	
					CfgMgr	0	
					Overhead	13 GB	
					Free	8 GB	
5	8 CPU	72 GB RAM	200	100	FWU	36 GB	-Xms36g -Xmx36g Attach ZCU, SAM if no DRM (HCM) The maximum number of devices in a FWU project is one million
					MPC	16 GB	

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
					MPCWSROUTE	2 GB	-Xms2048m -Xmx2048m
					FSU-SAM	1 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	2 GB	
6	8 CPU	48 GB RAM	200	2,000	DMS	8 GB	-Xms8g -Xmx8g
					Elasticsearch	24 GB	DMS_ES_HEAP_SIZE in dms.properties
						4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	2 GB	
7	4 CPU	32 GB RAM	300	300			
						1024 MB	
					bocoapclient	512 MB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	8 GB	
8	8 CPU	48 GB RAM	200	200 (See comments to the right)	Gateway	24G	-Xms24g -Xmx24g Gateway will use more memory depending on number of AP queues. For large size deployments, we assume 1000 AP's. IO activity may be heavy if stats logging is enabled. Average IOPS are in the range of 50 to 250 IOPS. Occasionally the average reaches peaks of 1200 IOPS. GW 1.4 with Zing JVM

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
					ZST	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	8 GB	
9	8 CPU	48 GB RAM	600	1,000	Network Center (CEP NMS)	12 GB	Storage size is based on these FPL simulation (use the calculator for different conditions) : 6M endpoints, 2700 APs Gateway Metrics Collection Frequency = 1 minute CEPNMS_ES_DATA_RETENTION_IN_DAYS = 2 CEPNMS_ES_SNAPSHOT_DATA_RETENTION_IN_DAYS = 2 CEPNMS_ES_SNAPSHOT_RETENTION_IN_DAYS = 2 Two disk mounts are required ■ standard install ■ DATA directory
					CEP ES	1 GB	
					NMS Elasticsearch	20 GB	
					CfgMgr	0	
					Overhead	10 GB	
10	16 CPU	64 GB RAM	200	100	Free	5 GB	
					HCM	36 GB	Up to 250k HAN devices
					HCMWSROUTE	1 GB	-Xms1024m -Xmx1024m
					NEC	8 GB	
					HCMJMSROUTE	1 GB	
					CfgMgr	0	
					Overhead	13 GB	
					Free	5 GB	
11	4 CPU	48 GB RAM	100	250	HiveMQ (MQTT Broker) HiveMQSSNCFG HiveMQPlugins	16 GB	(This host needs to be on DMZ) For IMU 500T (Up to 100k devices) *Need 32 GB for up to 1.5M IMU 500T devices (with host RAM 48 GB)

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
					MTR	16 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	6 GB	
12	8 CPU	48 GB RAM	200	100	ODS (1)	20 GB	
					ODSWSROUTE	2 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	12 GB	
19	8 CPU	48 GB RAM	200	100	ODS (2)	20 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	
20	8 CPU	48 GB RAM	200	100	ODS (3)	20 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
21	8 CPU	48 GB RAM	200	100	ODS (4)	20 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	
13	8 CPU	50 GB RAM	200	100	SIQ (1)	39 GB	-Xms39g -Xmx39g
					SIQWSROUTE	1 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	0	
14	8 CPU	50 GB RAM	200	100	SIQ (2)	39 GB	-Xms39g -Xmx39g
					Data Transfer 1.1	1 GB	(Optional. Required if customer needs to convert to csv format) *For Data Transfer 1.2, the heap size should be 16 GB, and the host RAM should be 72 GB instead
					CfgMgr	0	
					Overhead	10 GB	
					Free	0	
15	8 CPU	48 GB RAM	200	100	SIQ (3)	39 GB	-Xms39g Xmx39g
16	2 CPU	16 GB RAM	100	200	DRI	N/A (python app)	Host needs to be on DMZ. It uses MySQL and that can be installed on the same host.
					ZTP	512 MB	
					CfgMgr	0	

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
					Overhead	3.5GB	
					Free	N/A	
22	8 CPU	64 GB RAM	200	100	DINA (1)	39 GB	*For RivaGen 5 meters only, up to 1 M meters
					DICD	4 GB	set DICODEDEPLOYER_NOTIFICATION_NUMBEROFDEVICENOTIFICATIONPROCESSORTHREADS=40
					DINA-SHIM	4 GB	
					CfgMgr	0	
					Overhead	13 GB	
					Free	4 GB	
23	8 CPU	64 GB RAM	200	100	DINA (2)	39 GB	*For RivaGen 5 meters only, up to 1 M meters
					CfgMgr	0	
					Overhead	13 GB	
					Free	12 GB	
24	8 CPU	64 GB RAM	200	100	DINA (3)	39 GB	*For RivaGen 5 meters only, up to 1 M meters
					CfgMgr	0	
					Overhead	13 GB	
					Free	12 GB	

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
25	16 CPU	96 GB RAM	200	100	AMMMultispeak	16 GB	
					MSIAWSRoute	8 GB	
					QRService	16 GB	
					UAAExporter	16 GB	
					CMEExporter	16 GB	
					CfgMgr	0	
					Overhead	20 GB	
					Free	4 GB	
N/A	4 CPU	32 GB RAM	200	200	NAN_MANAGEMENT HOST	16GB	All Prod environments will require a dedicated NAN Management host for NAN security sweeps, NAN troubleshooting, NOC AP acceptance, and automated remediation. NAN management hosts to be used by SRO, NOC, DA Ops, CS, and TAC.
18	8 CPU	48 GB	100 GB	600	Gridscape	16 GB	
					CfgMgr	0	
					Overhead	3 GB	
					Free	29 GB	
Database servers							
N/A	16 CPU	128 GB RAM	7,300	15000*	Oracle RDBS Enterprise Edition 19c		
Nodesim server							
17	8 CPU	132 GB RAM	300	100	NODESIM		
Management server (applies to Managed Appliance only) MA-MGMT							

Table 12 2.5-6 million endpoints (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/component	Operations NGHP comments
N/A	64 CPU	182 GB RAM	1500	3000	Management components		Sizing is from 4.11 The management host is there to be ■ DNS Server ■ Virtualization host/management ■ Active Directory

Water Instance (up to 1 M water meters)

Table 13 up to one million water meters

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XMS	
0	8 CPU	72 GB RAM	300 GB	100	MT	44 GB	-Xms44g -Xmx44g with Zing ZVM
					CAAS	512M	-Xms512M -Xmx512M
					AMMWSROUTE	2 GB	-Xms2048m -Xmx2048m
					AMMJMSROUTE	2 GB	-Xms2048m -Xmx2048m
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	6.5 GB	

Table 13 up to one million water meters (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XMS	
1	8 CPU	72 GB RAM	300 GB	200	GMR	54 GB	-Xms54g -Xmx54g with Zing ZVM
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	0	
2	8 CPU	72 GB RAM	300 GB	1,000	DMS	8 GB	-Xms8g -Xmx8g
					Elasticsearch	24 GB	DMS_ES_HEAP_SIZE in dms.properties
					TIBCO	10 GB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgmt/ems/data/tibemsd.conf max_msg_memory = 10GB
					TRAPROUTER	6 GB	with Zing ZVM
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	7 GB	
3	8 CPU	48 GB	200	200	DATATRANSFER 1.2	16 GB	
					SSNEFProcessor	16 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	6 GB	

Table 13 up to one million water meters (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XMS	
4	8 CPU	72 GB RAM	200	100	FWU	24 GB	-Xms24g -Xmx24g
					MPC	10 GB	
					MPCWSROUTE	2 GB	
					REGISTRATIONHANDLER	8 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	13 GB	

AMMWSPProxy Host

Table 14 AMMWSPProxy host

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XMS	
0	8 CPU	32 GB RAM	200 GB	400	DATATRANSFER 1.2	16 GB	(This host needs to be on DMZ)
					AMMWSPROXY	4 GB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	5.5 GB	

Large environments with heavy interval meter configuration (up to six million Endpoints)

This environment was used when testing meter configuration with six million devices. The meters provided 16 LP1 intervals, 24 LP2 intervals, and 12 LP3 intervals per hour (total of 52 intervals per hour).

The extra interval processing during read and export required an additional GMR server and 30,000 IOPS for the Oracle database.

Table 15 Large environment with heavy interval meter configuration

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
Application Servers							
0	8 CPU	76 GB RAM	500	800	MT	44 GB	-Xms44g -Xmx44g with Zing ZVM
					CAAS	512 MB	-Xms512M -Xmx512M
					AMMWSROUTE	2 GB	-Xms2048m -Xmx2048m
					AMMJMSROUTE	2 GB	-Xms2048m -Xmx2048m
						8 GB	
					ZST	2 G B	
					CfgMgr	0	
					Overhead	12 GB	
					Free	5 GB	
1	8 CPU	32 GB RAM	200	1,000	TIBCO EMS	10 GB	/usr/ssn/thirdparty/tibco/CURRENT/tibco/cfgmgt/ems/data/tibemsd.conf max_msg_memory = 10GB (with SIQ 3.1) *increased host IOPS from 150 to 1,000 to support FPL trap load
					Traprouter	6 GB	with Zing ZVM
					Cryptkeeper	4 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	5 GB	
					Free	5 GB	
2	8 CPU	72 GB RAM	500	800	GMR (1)	54 GB	-Xms54g -Xmx54g with Zing ZVM

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 G	
					Free	0	
3	8 CPU	72 GB RAM	500	800	GMR (2)	54 GB	-Xms54g -Xmx54g with Zing ZVM (memory management reserve-at-config with ZST 5.21)
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	0	
26	8 CPU	72 GB	500	800	GMR (3)	54 GB	
					ZST	2 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	0	
4	8 CPU	66 GB RAM	200	150	Registrar	24 GB	-Xms24g -Xmx24g
					TMB	12 GB	-Xms12g -Xmx12g
					DLCA	512 MB	
					RegistrationHandler	8 GB	
					CfgMgr	0	
					Overhead	13 GB	
					Free	8 GB	

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
5	8 CPU	72 GB RAM	200	100	FWU	36 GB	-Xms36g -Xmx36g Attach ZCU, SAM if no DRM (HCM) The maximum number of devices in a FWU project is one million
					MPC	16 GB	
					MPCWSROUTE	2 GB	-Xms2048m -Xmx2048m
					FSU-SAM	1 GB	
					CfgMgr	0	
					Overhead	15 GB	
					Free	2 GB	
6	8 CPU	48 GB RAM	200	2,000	DMS	8 GB	-Xms8g -Xmx8g
					Elasticsearch	24 GB	DMS_ES_HEAP_SIZE in dms.properties
						4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	2 GB	
7	4 CPU	32 GB RAM	300	300		16 GB	
						1024 MB	
					bocoapclient	512 MB	
					CfgMgr	0	
					Overhead	6.5 GB	
					Free	8 GB	

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
8	8 CPU	48 GB RAM	200	200 (See comments to the right)	Gateway	24G	-Xms24g -Xmx24g Gateway will use more memory depending on number of AP queues. For large size deployments, we assume 1000 AP's. IO activity may be heavy if stats logging is enabled. Average IOPS are in the range of 50 to 250 IOPS. Occasionally the average reaches peaks of 1200 IOPS. GW 1.4 with Zing JVM.
					ZST	2 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	8 GB	
9	8 CPU	48 GB RAM	600	1,000	Network Center (CEP NMS)	12 GB	Storage size is based on these FPL simulation (use the calculator for different conditions) : 6M endpoints, 2700 APs Gateway Metrics Collection Frequency = 1 minute CEPNMS_ES_DATA_RETENTION_IN_DAYS = 2 CEPNMS_ES_SNAPSHOT_DATA_RETENTION_IN_DAYS = 2 CEPNMS_ES_SNAPSHOT_RETENTION_IN_DAYS = 2 Two disk mounts are required standard install
					CEP ES	1 GB	
					NMS Elasticsearch	20 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	5 GB	DATA directory

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
10	16 CPU	64 GB RAM	200	100	HCM	36 GB	Up to 250k HAN devices
					HCMWSROUTE	1 GB	-Xms1024m -Xmx1024m
					NEC	8 GB	
					HCMJMSROUTE	1 GB	
					CfgMgr	0	
					Overhead	13 GB	
					Free	5 GB	
11	4 CPU	48 GB RAM	100	250	HiveMQ (MQTT Broker) HiveMQSSNCFG HiveMQPlugins	16 GB	(This host needs to be on DMZ) For IMU 500T (Up to 100k devices) *Need 32 GB for up to 1.5M IMU 500T devices (with host RAM 48 GB)
					MTR	16 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	6 GB	
12	8 CPU	48 GB RAM	200	100	ODS (1)	20 GB	
					ODSWSROUTE	2 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	12 GB	

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
19	8 CPU	48 GB RAM	200	100	ODS (2)	20 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	
20	8 CPU	48 GB RAM	200	100	ODS (3)	20 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	
21	8 CPU	48 GB RAM	200	100	ODS (4)	20 GB	
					ODSJMSROUTE	4 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	14 GB	
13	8 CPU	50 GB RAM	200	100	SIQ (1)	39 GB	-Xms39g -Xmx39g
					SIQWSROUTE	1 GB	
					CfgMgr	0	
					Overhead	10 GB	
					Free	0	

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
14	8 CPU	50 GB RAM	200	100	SIQ (2)	39 GB	-Xms39g -Xmx39g
					Data Transfer 1.1	1 GB	(Optional. Required if customer needs to convert to csv format) *For Data Transfer 1.2, the heap size should be 16 GB, and the host RAM should be 72 GB instead
					CfgMgr	0	
					Overhead	10 GB	
					Free	0	
15	8 CPU	48 GB RAM	200	100	SIQ (3)	39 GB	-Xms39g Xmx39g
					CfgMgr	0	
					Overhead	8 GB	
					Free	1 GB	
16	2 CPU	16 GB RAM	100	200	DRI	N/A (python app)	Host needs to be on DMZ. It uses MySQL and that can be installed on the same host.
					ZTP	512 MB	
					CfgMgr	0	
					Overhead	3.5GB	
					Free	N/A	

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
22	8 CPU	64 GB RAM	200	100	DINA (1)	39 GB	*For RivaGen 5 meters only, up to 1 M meters
					DICD	4 GB	set DICODEDEPLOYER_NOTIFICATION_NUMBEROFDEVICENOTIFICATIONPROCESSORTHREADS=40
					DINA-SHIM	4 GB	
					CfgMgr	0	
					Overhead	13 GB	
					Free	4 GB	
23	8 CPU	64 GB RAM	200	100	DINA (2)	39 GB	*For RivaGen 5 meters only, up to 1 M meters
					CfgMgr	0	
					Overhead	13 GB	
					Free	12 GB	
24	8 CPU	64 GB RAM	200	100	DINA (3)	39 GB	*For RivaGen 5 meters only, up to 1 M meters
					CfgMgr	0	
					Overhead	13 GB	
					Free	12 GB	

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
25	16 CPU	96 GB RAM	200	100	AMMMultispeak	16 GB	
					MSIAWSRoute	8 GB	
					QRService	16 GB	
					UAAExporter	16 GB	
					CMEExporter	16 GB	
					CfgMgr	0	
					Overhead	20 GB	
					Free	4 GB	
N/A	4 CPU	32 GB RAM	200	200	NAN_MANAGEMENT HOST	16GB	All Prod environments will require a dedicated NAN Management host for NAN security sweeps, NAN troubleshooting, NOC AP acceptance, and automated remediation. NAN management hosts to be used by SRO, NOC, DA Ops, CS, and TAC.
18	8 CPU	48 GB	100 GB	600	Gridscape	16 GB	
					CfgMgr	0	
					Overhead	3 GB	
					Free	29 GB	
Database Servers							
N/A	16 CPU	128 GB RAM	7,300	30,000	Oracle RDBS Enterprise Edition 19c		30,000 IOPS required to handle the large amount of interval data during scheduled read and export.
Nodesim Server							
17	8 CPU	132 GB RAM	300	100	NODESIM		

Table 15 Large environment with heavy interval meter configuration (continued)

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	Components	Memory reqs/ component	Operations NGHP Comments
Management server (applies to Managed Appliance only) MA-MGMT							
N/A	64 CPU	182 GB RAM	1500	3000	Management components		Sizing is from 4.11 The management host is there to be ■ DNS Server ■ Virtualization host/management ■ Active Directory

Large with High Frequency New Data Read (up to 6 million endpoints)

This environment is used when New Data Read schedule is set to 1 hour frequency. The meter configuration can support up to six LP1 billing channels at 15 minute intervals. LP2 and LP3 can be configured but should only be read infrequently and from a smaller set of devices. For example, troubleshooting voltage and instrumentation data from a few thousand devices.

Index	Host CPU	Host memory	SAN storage reqs (GB)	SAN IOPS	App	XXM/XMS	
27	8 CPU	72 GB RAM	500 GB	800	GMR (3)	54 GB	-Xms54g - Xmx54g with Zing ZVM
					ZST	2 GB	
					CfgMgr	0 GB	
					Free	0 GB	
					Overhead	15 0	