

1. Project Planning

No.	Item	Value
1	Product/Solution	iMaster NCE
2	Version	V100R024C10
3	Installation mode	Product Only
4	Management scale	6K equivalent NEs
5	Configuration plan	Manager Domain(Physical Machine)
6	Hardware architecture	X86
7	Hardware architecture	X86
8	Site type	Single-site system
9	OS type	SUSE
10	SUSE Source	Customer-prepared
11	Back up initial data	Yes
12	Auto configure network	No
13	Business network type	Single network(north_south_not_divided)

2. Software Packages

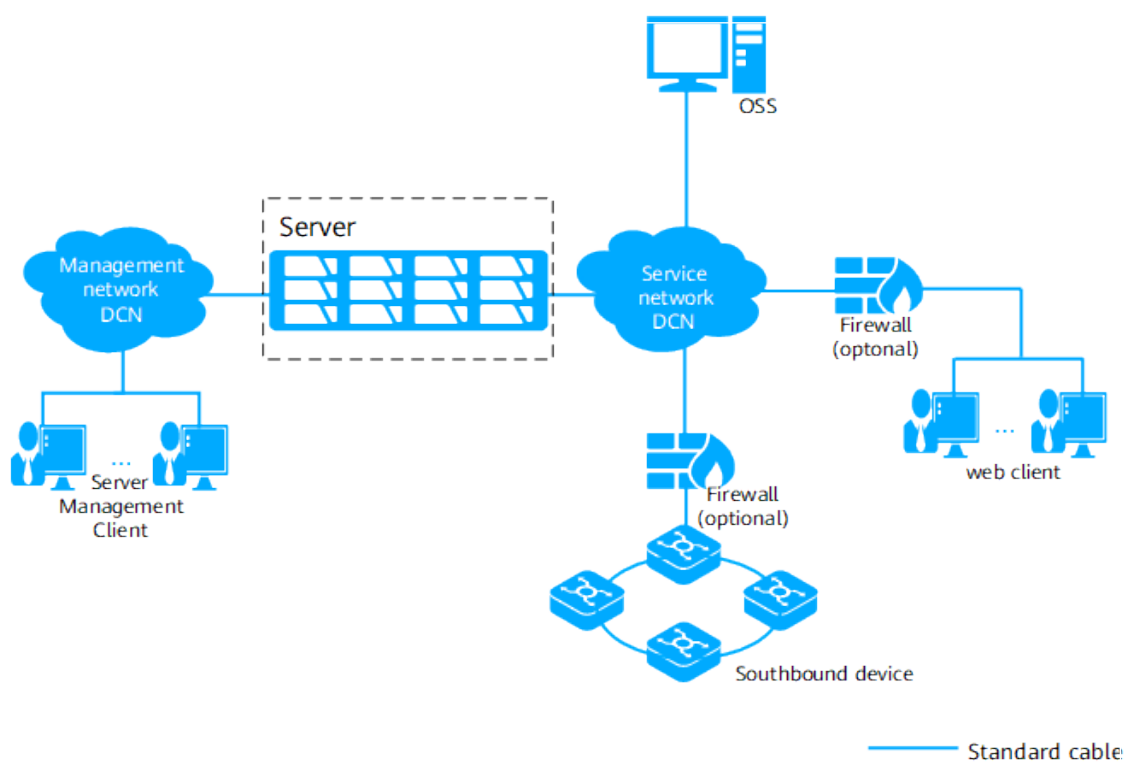
No.	Software Package Type	Software Package Name	Software Package Description
1	EasySuite Software Package	EasySuite_V100R024C10{version}_OM_linux-x86-64.zip	EasySuite upgrade tool software package.
2	NCE Software Packages	iMaster{product}_V100R024C10{version}_OSMediation_linux-x86-64.zip	OS Mediation package.
3	NCE Software Packages	iMaster{product}_{version}_OMP_linux-x86-64.zip	Management plane service package.
4	NCE Software Packages	EasySuiteSolution-MD_{version}_MDProductSolution_linux-x86-64_BP.zip	CrossDomain solution configuration package.
5	NCE Software Packages	iMaster{product}_{version}_AnalyzerCommon_linux-x86-64.7z	Analysis common service package.
6	NCE Software Packages	iMaster{product}_{version}_DataCubeCoreService_linux-x86-64.7z	DataCube service package.
7	NCE Software Packages	iMaster{product}_{version}_AOCCore_linux-x86-64.7z	Open programmable service package.
8	NCE Software Packages	iMaster{product}_{version}_APaaSCore_linux-x86-64.7z	Open programmable service package.
9	NCE Software Packages	iMaster{product}_{version}_AutomationEngine_linux-x86-64.7z	Automation Engine service package.
10	NCE Software Packages	iMaster{product}_{version}_Basic_linux-x86-64.7z	Cloud basic service package.

11	NCE Software Packages	iMaster{product}_{version}_CloudSOPCloudService_linux-x86-64.7z	O&M plane service package.
12	NCE Software Packages	iMaster{product}_{version}_CommonService_linux-x86-64.7z	Common service package.
13	NCE Software Packages	iMaster{product}_{version}_CoreBase_linux-x86-64.7z	Core-layer basic service package.
14	NCE Software Packages	iMaster{product}_{version}_CrossDomainServicePackage_linux-x86-64.7z	Shared service component.
15	NCE Software Packages	iMaster{product}_{version}_DigitalEngine_linux-x86-64.7z	Digital engine service package.
16	NCE Software Packages	iMaster{product}_{version}_GaussServer_linux-x86-64.7z	DB basic service package.
17	NCE Software Packages	iMaster{product}_{version}_Infra_linux-x86-64.7z	Cloud Infrastructure Service Package.
18	NCE Software Packages	iMaster{product}_{version}_LegacyCollector_linux-x86-64.7z	Unified Collector service package.
19	NCE Software Packages	iMaster{product}_{version}_NBCommonService_linux-x86-64.7z	Northbound common api software package.
20	NCE Software Packages	iMaster{product}_{version}_NBTrans_linux-x86-64.7z	Northbound api for transport domain software package.
21	NCE Software Packages	iMaster{product}_{version}_NCEPGW_linux-x86-64.7z	NCE protocol gateway feature software package
22	NCE Software Packages	iMaster{product}_{version}_NetworkDataIngestion_linux-x86-64.7z	Network Data Ingestion service package.

23	NCE Software Packages	iMaster{product}_{version}_NMSAccess_linux-x86-64.7z	Network management service package of NCE (Access Domain).
24	NCE Software Packages	iMaster{product}_{version}_NmsBaseApps_linux-x86-64.7z	Network management base apps package.
25	NCE Software Packages	iMaster{product}_{version}_NMSBase_linux-x86-64.7z	Network management common service package.
26	NCE Software Packages	iMaster{product}_{version}_NMSDC_linux-x86-64.7z	Network management service package of the DC domain.
27	NCE Software Packages	iMaster{product}_{version}_NMSiMap_linux-x86-64.7z	Network management basic service package.
28	NCE Software Packages	iMaster{product}_{version}_NMSIPE2E_linux-x86-64.7z	E2E service package of the IP domain.
29	NCE Software Packages	iMaster{product}_{version}_NMSIPThirdParty_linux-x86-64.7z	Service provisioning package of the IP domain for third-party devices.
30	NCE Software Packages	iMaster{product}_{version}_NMSIP_linux-x86-64.7z	Network management service package of the IP domain.
31	NCE Software Packages	iMaster{product}_{version}_NMSNBI_linux-x86-64.7z	Network management northbound interface service package.
32	NCE Software Packages	iMaster{product}_{version}_NMSPMS_linux-x86-64.7z	Network performance management service package.
33	NCE Software Packages	iMaster{product}_{version}_NMSTrans_linux-x86-64.7z	Network management service package of the Transport domain.
34	NCE Software Packages	iMaster{product}_{version}_ProductSolution_linux-x86-64.7z	Product solution configuration package.

35	NCE Software Packages	iMaster{product}_{version}_SDNWAN_linux-x86-64.7z	SDNWAN service package.
36	NCE Software Packages	iMaster{product}_{version}_SRM_linux-x86-64.7z	Cloud security service package.
37	NCE Software Packages	iMaster{product}_{version}_Trans3rdNms_linux-x86-64.7z	3rd cpe manager service package of NCE (Transport Domain).
38	NCE Software Packages	iMaster{product}_{version}_UniCollect_linux-x86-64.7z	UniCollect service package.

3. Network Planning



No.	Description
1	If the product type is NCE-Super, the southbound device refers to a domain controller.If the product type is not NCE-Super, the southbound device refers to an NE.

4. Bandwidth Planning

Configuration Item	Specifications
Network delay	• Between NCE and external systems (client, NE, and third-party arbitration site): < 50 ms • Between NCE and the OSS: < 20 ms • Between NCE VM nodes: < 1 ms • Between the primary and secondary sites of the NCE DR system: < 50 ms (< 20 ms if the Controller is contained)
Packet loss rate	• Between NCE and external systems (client, NE, and third-party arbitration site): < 1% • Between NCE and the OSS: < 1% • Between NCE VM nodes: < 0.2% • Between the primary and secondary sites of the NCE DR system: < 1% (< 0.1% if the Controller is contained)
Bandwidth between VMs	≥1000 Mbit/s
Bandwidth between the server and clients	Bandwidth recommended for a client: ≥ 10 Mbit/s. Bandwidth lower than 10 Mbit/s may cause slow loading of UI pages (such as the alarm page). Bandwidth between the server and clients = Bandwidth for a client * Number of clients

Bandwidth between the server and OSSs	Bandwidth for each OSS: ≥ 10 Mbit/s Bandwidth between the server and OSSs = Bandwidth for each OSS $\times$ Number of OSSs. For example, if three OSSs interconnect with the same NCE through REST interfaces, the minimum bandwidth is 30 Mbit/s (3×10 Mbit/s). If there are two OSSs, with one interconnecting with NCE through the REST interface and the other interconnecting with NCE through the SNMP interface, the minimum bandwidth is 20 Mbit/s (10 Mbit/s + 10 Mbit/s).
Bandwidth between the server and NEs	The Manager, Controller, and Analyzer have different bandwidth requirements. The required minimum bandwidth is the sum of bandwidths for deploying the Manager, Controller, and Analyzer. • Controller Committed Information Rate (CIR): $N \times 2$ kbit/s (at least 4 Mbit/s); Peak Information Rate (PIR): $N \times 10$ kbit/s (at least 10 Mbit/s) • Manager CIR: $N \times 0.5$ kbit/s (at least 2 Mbit/s); PIR: $N \times 5$ kbit/s (at least 10 Mbit/s) (In different networks, the 2 Mbit/s bandwidth may not meet the bandwidth requirement of the live network.) In this case, you can use formulas to determine the CIR and PIR. Network-wide data synchronization, performance data collection, and batch upgrade require high bandwidth. Therefore, it is recommended that the live network bandwidth meet the PIR requirement. • Analyzer bandwidth Basic performance collection: CIR = $N \times 0.002$ Mbit/s (minimum: 4 Mbit/s), PIR = $N \times 0.01$ Mbit/s (minimum: 20 Mbit/s) Note: N indicates the number of equivalent NEs.

5. Software and Hardware Specifications

Server Software and Hardware Configuration

Client	Configuration
Server Configuration	• The CPU dominant frequency is not lower than 2 GHz. • Do not configure CPU, memory, or storage overcommitment. Otherwise, NCE performance will deteriorate. Overcommitment is a virtualization technology that allocates more virtual resources than physical resources to VMs. For example, if the physical memory is 32 GB, overcommitment can be used to allocate more than 32 GB memory to VMs. • For details about NCE specifications, see the "product node specifications" (CPU/memory, disk size, and IOPS).
Virtual Platform Configuration	• Compatible with the Euler, SUSE used by NCE. • KVM is recommended for the virtualization Hypervisor. • Huawei NFVI or FusionCompute is recommended. • It is recommended that the virtualization platform provide the local HA or remote disaster recovery service to enhance the reliability of the cloud platform. • It is recommended that the virtualization platform provide good fault monitoring and alarm capabilities. In private cloud scenarios, NCE does not interconnect with the monitoring and alarm data of the cloud platform to improve fault demarcation and locating capabilities.
VM Configuration	• Meet the anti-affinity requirements of NCE VMs to improve NCE availability in the case of host faults. For details, see "Product Node Specifications". • Meet the IP address quantity and bandwidth requirements of NCE. For details about the IP address quantity requirements, see the network segment and IP address quantity in the "LLD". For details about the bandwidth requirements, see "Bandwidth Planning" in the "HLD".
Software Configuration	• Operating system: EulerOS V200R012C00; SUSE15 SP6. • Database: GaussDB T V3.

NCE Client (Management plane, O&M plane) configurations

Component	Version
PC	Minimum: CPU: 2 cores, 2.6 GHz Memory: 4 GB Hard disk: 8 GB Recommended: CPU: 4 cores, 3.1 GHz Memory: 8 GB Hard disk: 8 GB
Cloud Desktop	Minimum: CPU: 4 cores, 2.6 GHz Memory: 4 GB Hard disk: 8 GB Recommended: CPU: 6 cores, 3.1 GHz Memory: 8 GB Hard disk: 8 GB
OS	Windows 10 32bit/64bit
Browser	●Google Chrome 113 or later (32-bit or 64-bit) ●Firefox 113 or later (32-bit or 64-bit) ●Firefox 102 ESR or later (32-bit or 64-bit) ●Microsoft Edge 113 or later (64-bit)
Resolution	1366 * 768 or higher; recommended resolution: 1920 * 1080.Zoom ratio of the browser: 100% is recommended and 80% to 200% is compatible.

6. Product Node Specifications

Node Category	Node Type	Node Description	Protection Solution	Deployment Policy	VMs	vCPUs	Memory (GB)	Storage (GB)	IOPS
NMS	NMS_Server	NMS.	Single-instance	N/A	1	32	128	System Disk: 92 Data Disk: 508	1800
ALL					1	32	128	600	2300

7. Reliability and Protection Capability

Protection Type	Protection Solution	Description	Protection Capability
Software Availability	HA of application services	Process restart: Process status is monitored in real time. If a process is stopped or faulty, a maximum of 10 consecutive attempts will be made to restart it. If all the attempts fail, an alarm will be reported to inform users of manual troubleshooting.	Process restart time <= 5 minutes
Software Availability	Data HA	Backup and restore: The backup and restore function is provided for data. Data is backed up in a timely manner. If data becomes abnormal, users can restore them to the normal state by using backup files.	Restoration duration <= 60 minutes

8. Product Node Settings

Product Node Network

Node Type	NIC	IP V ersi on	IP Address	Subnet Mask	Destination Network	Destination Mask	Gateway
NMS_Server	eth0	IPv 4					

Product Node Resources

Node Type	Hostname	vCPUs	Memory (GB)	Storage (GB)
NMS_Server	NMS-Server	32	128	600

Network Plane Configuration

Communication Network	NIC Name
'Client-side/Northbound Network	eth0

9. OS Settings

NCE language	
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OS Time Zone	
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OS Password Setting of Install NCE Product

Virtual Node OS User	root
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Virtual Node OS Password	
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Install NCE Product OS User	root
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Install NCE Product OS Password	
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External NTP Server

Active NTP Server	
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Standby NTP Server	
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Password Planning

User Type	User	Password	Function Description
OS User	sopuser		Common user. This user is used for login through SSH and file transfer through SFTP.

OS User	ossadm		Management plane administrator. This user can install, start, stop, and manage the management plane
OS User	ossuser		Common user. This user can run and start O&M plane services.
OS User	ftpuser		Common user. Transfer files through SFTP. SSH login is not allowed.
Database User	sys		GaussDB administrator user. This user is used to modify database configurations, to add, delete, modify, and query the database and database users, and to change user passwords. This user is only allowed to log in locally.
Database User	dbuser		RedisDB administrator user.
'Application-Layer User	admin		O&M plane administrator. This user can log in to the O&M plane web client and performing operations on the O&M plane.
'Application-Layer User	admin		Management plane administrator. This user can log in to the management plane web client and performing operations on the management plane.

OS Security Hardening

Operation	Perform
Whether to security hardening	Yes