RESPOSTAS A DILIGENCIA:

1) 1.1.3 Deve ser compatível com a solução atual da Contratante, sem prejudicar nenhuma das funcionalidades ofertadas pelo Servidor de Comunicação Central da Solução de Voz da INFOVIA Voz, atualmente Open Scape Voice (OSV) versão 7.
RESPOSTA: A solução SE2900 ofertada, possuiu integração com a solução de solicitada através dos protocolos abertos padrões de mercado. Essa compatibilidade poderá ser verificada na faze de amostra com a homologação do produto.

2) 1.1.7 Deve possuir fonte de alimentação externa de 100-240 V (AC) 50/60 Hz, com chaveamento automático e sistema de aterramento eficiente.
RESPOSTA: A solução SE2900 ofertada atende integralmente ao edital possuindo fonte alimentação 100-240 (AV) 50/60Hz, com chaveamento automático e sistema de aterramento eficiente, conforme solicitado no item 1.1.7. A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

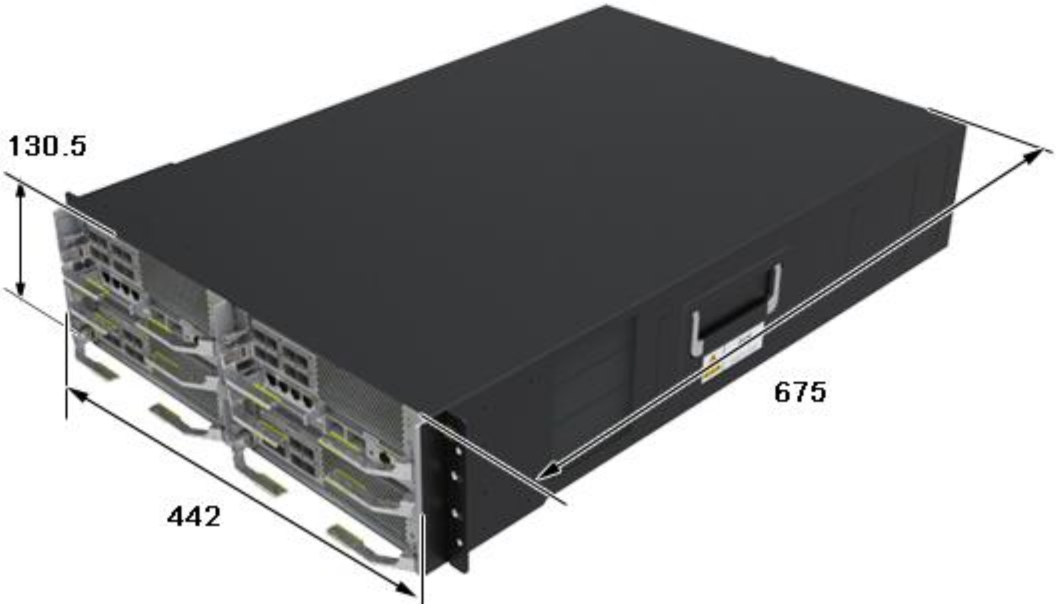
3) 1.1.9 Deve possuir todos os *hardwares* e *softwares* necessários para a implantação de quaisquer funcionalidades inclusas ou previstas, considerando o número máximo de acessos simultâneos em todas as funcionalidades solicitadas na Solução.
RESPOSTA: A solução SE2900 será ofertada com todo o hardware e software necessário conforme solicitado no edital. Ressaltamos que a solução SE29000 conforme documento "*Data Sheet Huawei new generation SBC SE2900"* suporta 1.200.000 usuários em um único equipamento, podendo chegar a 4.000.000 de usuários.

4) 1.1.11 A eventual inserção de um cartão ou módulo em um *slot* que não lhe seja o correspondente não deverá causar danos àqueles componentes ou à central.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.1.11, possuindo solução com todos os módulos suportando a funcionalidade de hot swap. A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

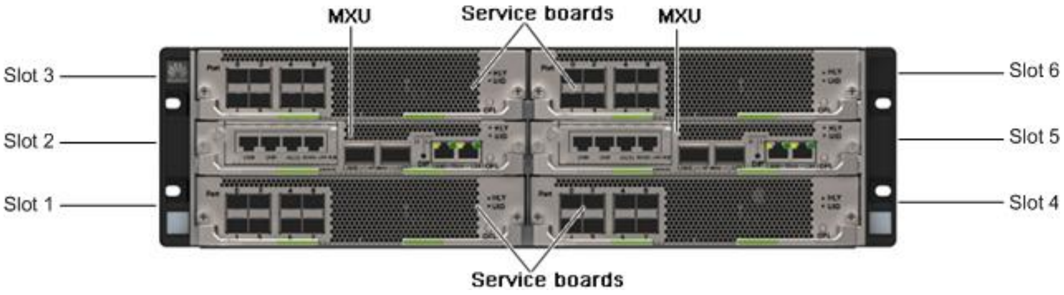
5) 1.1.14 O hardware fornecido na solução deverá ser fabricado ou homologado pelo fabricante do *software* embarcado.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.1.14. Os hardwares fornecidos conforme descrito nos documentos "*SE2900 Hardware Description" e "SE2900 Product Description"* são fabricados pelo próprio fabricante Huawei o seus componentes como por exemplo processador Intel são todos homologados pela Huawei.
Abaixo transcrição do documento "SE2900 Product Description" com informações do hardware fornecido.

The SE2900 uses the F8002 subrack (3U high) and six slots, as shown in 0, 0, and **Erro! Fonte de referência não encontrada.**. OMUs must be inserted in slots 2 and 5, SPUs must be inserted in slots 1, 3, 4, and 6, and VPUs must be inserted in slots 1, 3, 4, and 6.

Appearance



Front view



A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

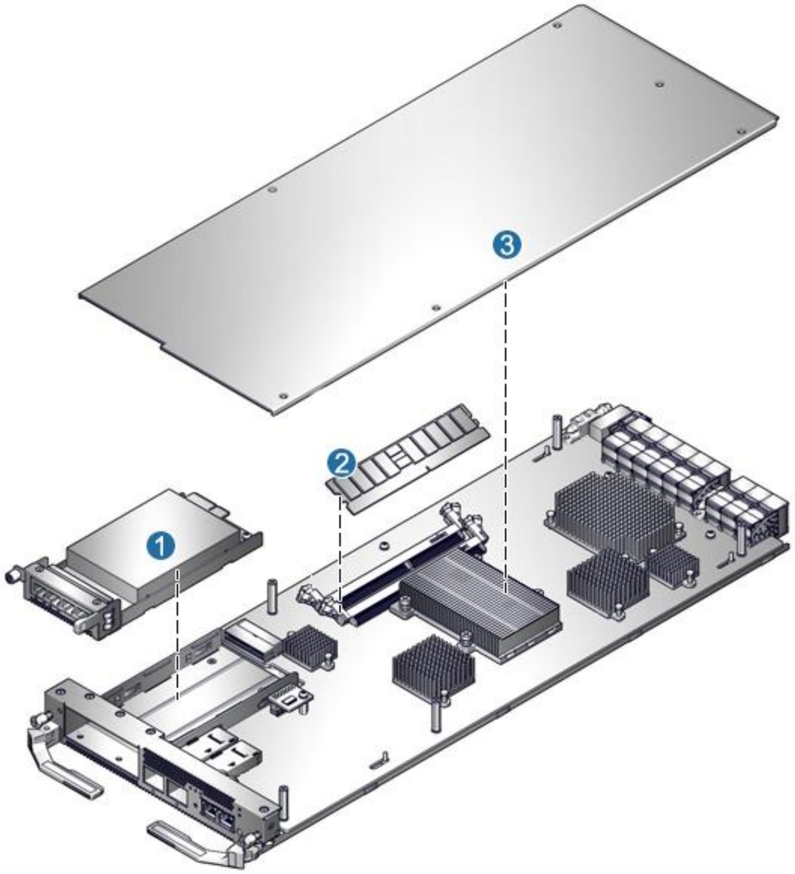
6) 1.1.16 Compatibilidade com soluções de telefonia atualmente utilizadas na INFOVIA, especialmente as informadas neste Anexo I ao Termo de Referência.
RESPOSTA: A solução SE2900 ofertada, possuiu integração com a solução de solicitada através dos protocolos abertos padrões de mercado. Essa compatibilidade poderá ser verificada na faze de amostra com a homologação do produto.

7) 1.5.1 O hardware deve possuir, no mínimo, 500 (quinhentos) GB de HD para logs e CDR; tal recurso pode ser ofertado com redirecionamento de logs para um servidor externo, desde que fornecido pela Contratada, ou ponto de armazenamento externo.
RESPOSTA: A solução é composta e será entregue com 02(dois) módulos MXU que possui 01(um) Hard disks de 600(seiscentos) GB em cada modulo MXU. Ou seja, serão ofertados 04(quatro) hard disks de 600GB para a solução.

Abaixo transcrição do documento "SE2900 Hardware Description":

1.7 MXU

The multi-function switch units (MXUs) exchange service plane data and provide ports for eFabric interface cascading.



Describes the components of the MXUA0

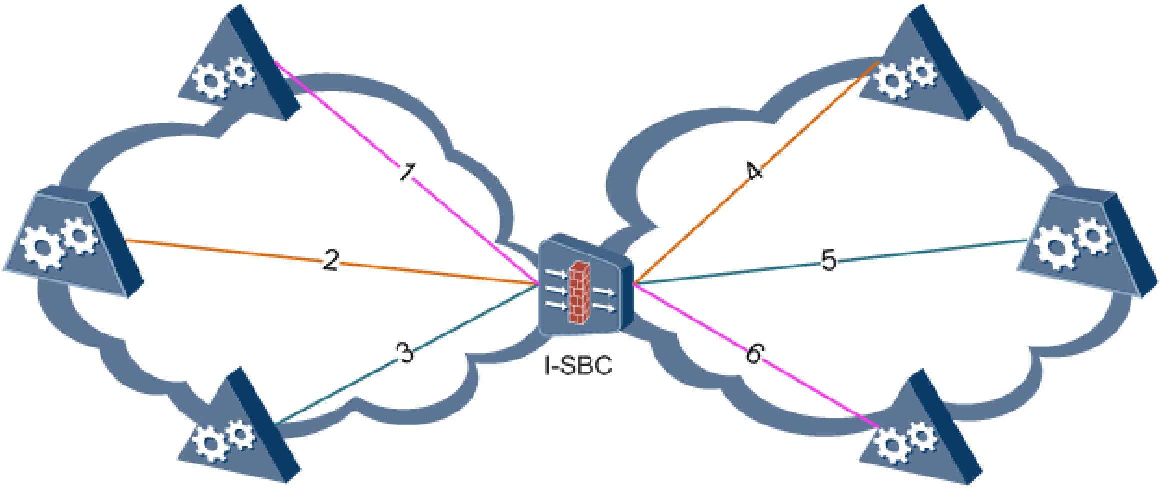
Table Components:

No.	Component	Quantity	Description
1	Hard disk	1	One 2.5-inch, 600 GB SAS hard disk is configured before delivery.

A solução será entregue com todo o hardware e software necessário para atender integralmente as exigências técnicas do edital.

A comprovação do item está descrita dos documentos técnicos e proposta enviada e poderá ser verificada na faze de amostra com a homologação do produto.

8) 1.6.2 Deve ser capaz de rotear as chamadas, baseado em tabelas de numeração internas ao equipamento, não necessitando realizar consultas ao servidor central da solução, consumindo dessa forma apenas uma sessão de chamada. Deve ser possível alimentar a base de dados por pelo menos duas das possibilidades a seguir:
RESPOSTA: A solução SE2900 atende integralmente ao item 1.6.2 possuindo tabelas de numeração interna a solução, consumindo apenas uma sessão de chamada para realizar o roteamento das chamadas, conforme pode ser verificado no documento *"SE2900 Feature Description"* 2.10 *SE9S000FRT00 Flexible Routing.* Abaixo figura que ilustra o roteamento das chamadas sem realizar consultas um servidor central externo. Todo o procedimento de análise, consulta e escolha de rota e realizada de forma interna no equipamento SE29000.

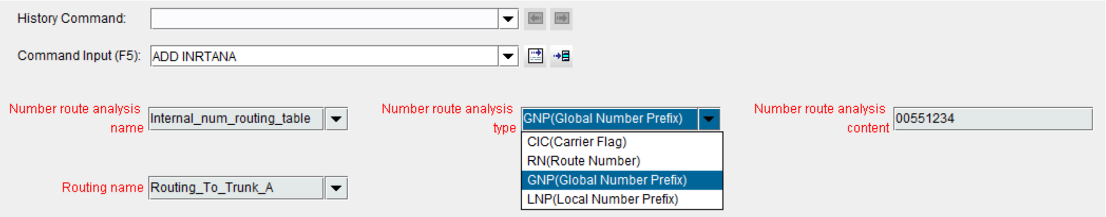


A comprovação do item está descrita na carta oficial do fabricante, nos documento técnicos enviados e poderá ser verificada na faze de amostra com a homologação do produto.

9) 1.6.2.1 Diretamente pela CLI do equipamento com informação individual de cada ramal ou de *range* de ramais;

RESPOSTA: A solução SE2900 atende integralmente ao item 1.6.2.1, as configurações do mecanismo de roteamento podem ser realizadas com informação individual de cada ramal ou através de um range/grupo de ramais, conforme pode ser verificado no documento *"SE2900 Feature Description"* 2.10 *SE9S000FRT00 Flexible Routing.*

Abaixo uma tela de configuração do equipamento onde comprova integralmente ao solicitado no item e explicação técnica de cada paramento de configuração:



History Command:

Command Input (F5): ADD INRTANA

Number route analysis name: Internal_num_routing_table

Number route analysis type: GNP(Global Number Prefix)

Number route analysis content: 00551234

Routing name: Routing_To_Trunk_A

Parameter ID	Parameter Name	Parameter Description
NRTAN	Number route analysis name	This parameter uniquely identifies an IBCF number route analysis data record. Value: a string of 1 to 31 characters No default value
NRTANATYPE	Number route analysis type	This parameter specifies the type of the key prefix used in number route analysis. Value: • **CIC(Carrier Flag)**: specifies a carrier, which is the combination of the **CIC-CONTEXT** and **CIC** parameters in the Request-URI. In the following Request-URI "tel:+8675587660001;cic=17951;cic-context=+86", "8617951" identifies a carrier. • **RN(Route Number)**: specifies a specific route, which is the combination of the **RN-CONTEXT** and **RN** parameters in the Request-URI. In the following Request-URI "tel:+8675587660001;rn=68701;rn-context=+86", "8668701" is the routing number. • **GNP(Global Number Prefix)**: specifies the prefix of the global number in TEL format, which usually starts with "tel:+". For example, "tel:+8675528423945". If the IBCF identifies the SIP URI the carries the "use=phone" parameter as a number in TEL format, the called number in SIP URI "sip:+8675528423945@home.com;user=phone" is also a global number. • **LNP(Local Number Prefix)**: specifies the prefix of the local

		number in TEL format. In common cases, the local number starts with "tel:" and does not contain any plus (+) sign. For example, "tel:28423945". If the IBCF identifies the SIP URI the carries the "use=phone" parameter as a number in TEL format, the called number in SIP URI "sip:28423945@home.com;user=phone" is also a local number. No default value
NRTANACONT	Number route analysis content	This parameter specifies the content of the carrier identification code, routing number, global number prefix, or local number prefix. The values of this parameter and **Number route analysis type** together identifies a routing name. Value: - If **Number route analysis type** is set to **CIC(Carrier Flag)**, set this parameter to a string of not more than 9 characters. - If **Number route analysis type** is set to **RN(Route Number)**, set this parameter to a string of not more than 31 characters. - If **Number route analysis type** is set to **GNP(Global Number Prefix)**, set this parameter to a string of not more than 31 characters. - If **Number route analysis type** is set to **LNP(Local Number Prefix)**, set this parameter to a BCD code of not more than 31 characters. No default value
RTSN	Routing name	This parameter specifies the name of the category to which the URI of the called number belongs. Value: a string of 1 to 31 characters No default value

A comprovação do item está descrita na carta oficial do fabricante, nos documento técnicos enviados e poderá ser verificada na faze de amostra com a homologação do produto.

10) 1.6.6 Possuir a capacidade de configuração da lógica de roteamento baseada em Realms.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.6.6, possuindo capacidade de realizar roteamento baseados em Realms que são domínios SIP, conforme pode ser verificado no documento *"SE2900 Feature Description"* 2.10 *SE9S000FRT00 Flexible Routing*

Abaixo transcrição do texto onde também e possível se verificar a comprovação do item:

In the preceding figure, incoming trunk group 1 maps to outgoing trunk group 6. That is, the I-SBC forwards the SIP messages received from the internal domain through incoming trunk groups 1 and 6 to the external domain through outgoing trunk groups 6 and 1, respectively.

Flexible routing is different from direct routing in that: the incoming and outgoing trunk groups do not have a one-to-one relationship, as shown in ***Erro! Fonte de referência não encontrada.****.*

Benefits to Customers

For...	*Benefits*
Carriers	*This feature enables carriers to configure number analysis and route analysis data to improve the flexibility of route planning, which ensures better network connectivity and optimized routing efficiency.*
Users	*This feature provides users with better outgoing call service experience.*

A comprovação do item está descrita na carta oficial do fabricante, nos documento técnicos enviados e poderá ser verificada na faze de amostra com a homologação do produto.

11) 1.7.7 Suportar Syslog.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.7.7, suportando o protocolo syslog e possuindo integração com servidores do tipo syslog. O documento *SE2900 Alarm Description* no tópico *"Connection Failure Between the OMU and the Syslog Server"* informa a possibilidade de integração com sistemas syslog.
Abaixo *segue informação sobre os procedimentos para configuração do servidores syslog:*

Configuring Data for Interconnection Between the OMU and the Syslog Server (Log Management)

Scenarios

Before uploading OS logs generated by the OMU or service VMs to the dedicated Syslog server for managing these logs, configure the network between the OS system and the Syslog server. Assume that the OMU server is configured as the Syslog client. This section describes how to configure the network between the Syslog client (OMU server) and the Syslog server.

NOTE:
If the OMU is installed in High Availability (HA) mode, you must configure the VMs running the active and standby OMUs by following the steps described in this section.

Impact on the System

This operation has no adverse impact on the system.

Prerequisites

Conditions

The Syslog server is provided and maintained by carriers.

Data

Before configuring the network with the Syslog server, obtain the following data from carriers:

- Transmission protocol used by the Syslog server.
- IP address of the Syslog server.
- Port number of the Syslog server.
- IP address and port number of the OMU board.
- Local user name and password for logging in to the VM running the OMU. You can obtain the data from the system administrator

Procedure

1. Use the PuTTY tool to log in to the VM running the OMU as user **cgpexpert**.
2. Run **su - root** to switch to user **root**.
3. Run **ping** *SYSLOG_SERVER_IP* to check the connection between the OMU and the Syslog server.

   NOTE:
   - *SYSLOG_SERVER_IP* indicates the IP address of the Syslog server.
   - If the check fails, see Connection Failure Between the OMU and the Syslog Server.

4. Edit the **syslog-ng.conf** file.
   a. Run **vi /etc/syslog-ng/syslog-ng.conf**.
   b. Press **/**, and then enter **destination logserver** to search for **destination logserver**. The matching information is highlighted in yellow.
   c. Press **Enter**, and then press **i**. Place the cursor on the character to be modified and edit the file according to the following format:

```
d. destination logserver { udp("XXX.XXX.XXX.XXX" port(514)); };
   log { source(src); filter(f_messages); destination(logserver);
   };
```

If you add multiple Syslog servers, edit the **syslog-ng.conf** file according to the following format:

```
destination logserver {
         udp("XXX.XXX.XXX.XXX", port(514));
         udp("XXX.XXX.XXX.XXX", port(514));
         udp("XXX.XXX.XXX.XXX", port(514));
};
log { source(src); filter(f_messages); destination(logserver);
};
```

Replace the configuration items according to the actual carrier requirements. Table 1 lists the configuration items.

Table 1 Configuration items

Configuration Item	Description
udp	Transport protocols used by the Syslog server, including UDP (default) and TCP.

Table 1 Configuration items

Configuration Item	Description
XXX.XXX.XXX.XXX YYY.YYY.YYY.YYY	IP address of the Syslog server.
port	Port number of the Syslog server. The default value is **514**.
source	Physical IP address and port number of the OMU that interworks with the Syslog server.
destination	Name of the Syslog server.

Press **Esc**, enter **:wq**, and press **Enter** to save the configurations and exit.

Run **vi /etc/logrotate.d/syslog-ng**, and then press **i** to edit the **syslog-ng** file.

You can modify the values of the parameters **rotate** and **size** according to the actual carrier requirements.

- **rotate** *count*indicates the number of times the log files are dumped before deletion.
- **size** *size*: You can only after its size reaches the value specified by *size*. You can specify the file size in bytes (by default), KB (200 KB, for example), or MB (200 MB, for example).

The modified configurations are as follows:

```
/var/log/messages {
    compress
    dateext
    maxage 365
    rotate 50
    missingok
    notifempty
    size +200M
    create 640 root root
    sharedscripts
    postrotate
        /etc/init.d/syslog reload
    endscript
}
```

Press **Esc**, enter **:wq**, and press **Enter** to save the configurations and exit.

Run **rcsyslog restart** to restart the Syslog services on the Syslog client.

Run **rcsyslog status** to check whether the Syslog services are running normally.

The Syslog services are running normally if the command output is as follows:

```
Checking for service syslog:                                 running
```

Save a backup copy of the configuration file after the configuration is completed. For details, see Manually Backing Up OS Security Hardening Configuration.

Verification

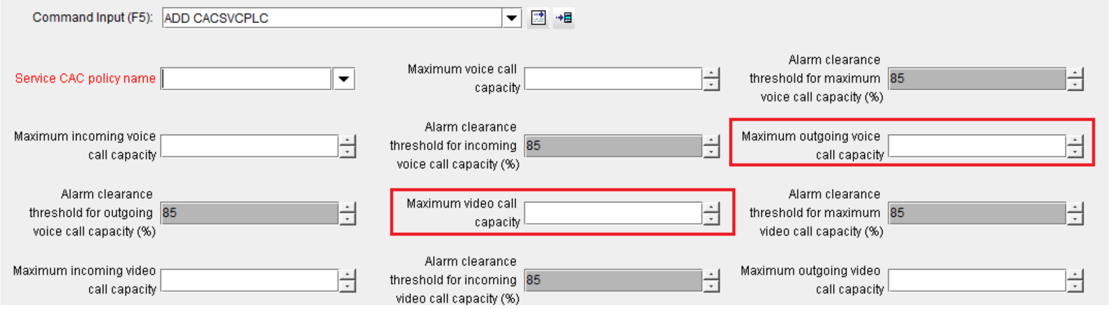
To verify the Syslog server and Syslog client connection, perform the following steps:

1. Run **tail -f /var/log/messages** on the Syslog client and check the last line of the **messages** file.
2. Open the **/var/log/messages** file on the Syslog server. If the content contains the last line of the **messages** file generated on the Syslog client, you can infer that the interworking is correctly configured.

A comprovação do item está descrita na carta oficial do fabricante, nos documento técnicos enviados e poderá ser verificada na faze de amostra com a homologação do produto

12) 1.8.5 Deve permitir controle de admissão de chamadas de vídeo e voz, que evite sobrecarga da fila de alta prioridade.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.8.5, possuindo controle de admissão de chamadas de vídeo e voz, que evitanda a sobrecarga da fila de alta prioridade. A funcionalidade de CAC(controle de admissão de chamadas) pode ser verificada no documento *SE2900 Feature Description - 2.24.4 CAC.*

Abaixo figura da console de configuração onde e possível verificar o controle de admissão d chamadas para chamadas e vídeo e voz:



Command Input (F5): ADD CACSVCPLC

Service CAC policy name:
Maximum voice call capacity:
Alarm clearance threshold for maximum voice call capacity (%): 85
Maximum incoming voice call capacity:
Alarm clearance threshold for incoming voice call capacity (%): 85
Maximum outgoing voice call capacity:
Alarm clearance threshold for outgoing voice call capacity (%): 85
Maximum video call capacity:
Alarm clearance threshold for maximum video call capacity (%): 85
Maximum incoming video call capacity:
Alarm clearance threshold for incoming video call capacity (%): 85
Maximum outgoing video call capacity:

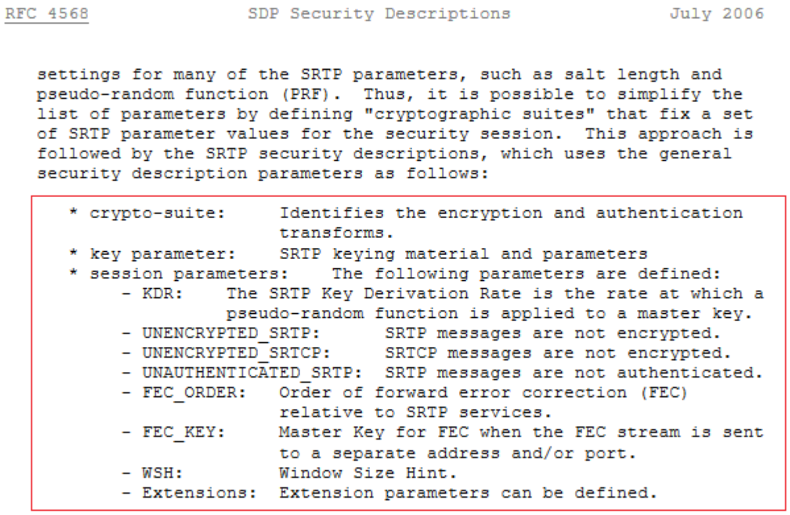
A comprovação do item está descrita na carta oficial do fabricante, nos documento técnicos enviados e poderá ser verificada na faze de amostra com a homologação do produto.

13) 1.8.6 O processamento de análise dos pacotes não deve impactar na qualidade das chamadas, gerando possíveis DoS.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.8.6, o processo de análise dos pacotes não causa nenhum impacto na qualidade das chamadas gerando possíveis DoS. Ressaltamos que a solução SE29000 conforme documento “Data Sheet Huawei new generation SBC SE2900” suporta 1.200.000 usuários em um único equipamento, podendo chegar a 4.000.000 de usuários.

14) 1.8.18 Deve ser do tipo *Stateful Firewall Inspection*.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.8.18, sendo um equipamento do tipo Statefull com funcionalidades de Firewall inspection conforme solicitado no edital. A comprovação do item foi demonstrada através de funcionalidade de IDS(*intrusion detection system*) que características de soluções do tipo Stateful firewall inspection. Pode ser comprovado também outras funcionalidades de firewall statefull no documento *SE2900 Feature Description- 2.24 SE9SBSECSW00 Security Enhancement Function.*

A comprovação do item está descrita na carta oficial do fabricante, nos documento técnicos enviados e poderá ser verificada na faze de amostra com a homologação do produto.

15) 1.9.7 Deve suportar o protocolo SDES via SRTP. Dessa forma, deve permitir *Interworking* entre RTP e SRTP para permitir que ramais criptografados na internet se comuniquem com centrais sem criptografia no ambiente interno.
RESPOSTA: A solução atende integralmente ao item 1.9.7. O equipamento SE29000 suporta o protocolo SDES conforme RFC 4568.
Abaixo transcrição de uma parte da RFC 4568 e parâmetros de configuração do SE29000 onde comprova o atendimento ao protocolo SDES.



```
RFC 4568              SDP Security Descriptions              July 2006

   settings for many of the SRTP parameters, such as salt length and
   pseudo-random function (PRF).  Thus, it is possible to simplify the
   list of parameters by defining "cryptographic suites" that fix a set
   of SRTP parameter values for the security session.  This approach is
   followed by the SRTP security descriptions, which uses the general
   security description parameters as follows:

      * crypto-suite:     Identifies the encryption and authentication
                          transforms.
      * key parameter:    SRTP keying material and parameters
      * session parameters:    The following parameters are defined:
           - KDR:    The SRTP Key Derivation Rate is the rate at which a
                     pseudo-random function is applied to a master key.
           - UNENCRYPTED_SRTP:      SRTP messages are not encrypted.
           - UNENCRYPTED_SRTCP:     SRTCP messages are not encrypted.
           - UNAUTHENTICATED_SRTP:  SRTP messages are not authenticated.
           - FEC_ORDER:   Order of forward error correction (FEC)
                          relative to SRTP services.
           - FEC_KEY:     Master Key for FEC when the FEC stream is sent
                          to a separate address and/or port.
           - WSH:         Window Size Hint.
           - Extensions:  Extension parameters can be defined.
```

Segue abaixo um exemplo do atributo crypto no equipamento SE29000.

```
a=crypto:1 AES_CM_128_HMAC_SHA1_32
inline:MDEyMzQ1Njc4OWFiY2RlZmdoaWprbG1ub3BxcnN0|2^24|1:4 KDR=12
UNENCRYPTED_SRTP UNENCRYPTED_SRTCP UNAUTHENTICATED_SRTP
```

Field	Description	Example Value
tag	A decimal number used as an identifier for a particular crypto attribute. Leading zeroes must not	1

Field	Description	Example Value
	be used. The tag must be unique among all crypto attributes for a given media line. It is used with the offer/answer model to determine which of several offered crypto attributes were chosen by the answerer.	
crypto-suite	An identifier that describes the encryption and authentication algorithms. In the offer/answer model, **crypto-suite** is a negotiated parameter. The SE2900 supports only two cryptographic suites: AES_CM_128_HMAC_SHA1_80 and AES_CM_128_HMAC_SHA1_32.	AES_CM_128_HMAC_SHA1_32
key-params	Provides one or more sets of keying material for **crypto-suite**. The format is key-params = &lt;key-method> ":" &lt;key-info>. • **key-method** defines only one method: "inline", which indicates that the actual keying material is provided in the key-info field itself. • **key-info** is defined as a string of characters, including the master key, master key lifetime (optional), and MKI (optional) and its length.	inline:MDEyMzQ1Njc4OWFiY2RlZmdoaWprbG1ub3BxcnN0|2^24|1:4 • MDEyMzQ1Njc4OWFiY2RlZmdoaWprbG1ub3BxcnN0 is the master key. • **2^24** is the master key lifetime. • **1:4** is the MKI length.
session-params	Optional field. Parameters in **session-params** include: • KDR: key derivation rate • UNENCRYPTED_SRTCP: unencrypted RTCP • UNENCRYPTED_SRTP: unencrypted RTP • UNAUTHENTICATED_SRTP: unauthenticated RTP • FEC_ORDER: media FEC • FEC_KEY: FEC parameters • WSH: window size hint	KDR=12 UNENCRYPTED_SRTP UNENCRYPTED_SRTCP UNAUTHENTICATED

A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

16) 1.9.10 Definir as portas que serão utilizadas na comunicação pelos protocolos de sinalização e liberá-las apenas para os *endpoints* em questão durante o período da comunicação.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.9.10. Os conceitos e métodos utilizados para liberação das portas de forma segura da solução pode ser encontrada no documento *SE2900 Feature Description* - 1.1.3 SIP Call - Session timer, 1.2.7 Flow Control, 2.24 SE9SBSECSW00 Security Enhancement Function - 2.24.4 CAC.

Abaixo transcrevemos parte do configuração do recurso A-BCF(Access Border Control Function):

Configuring A-BCF Data

Contents

3.3.3.5.1 Configuring A-BCF Data

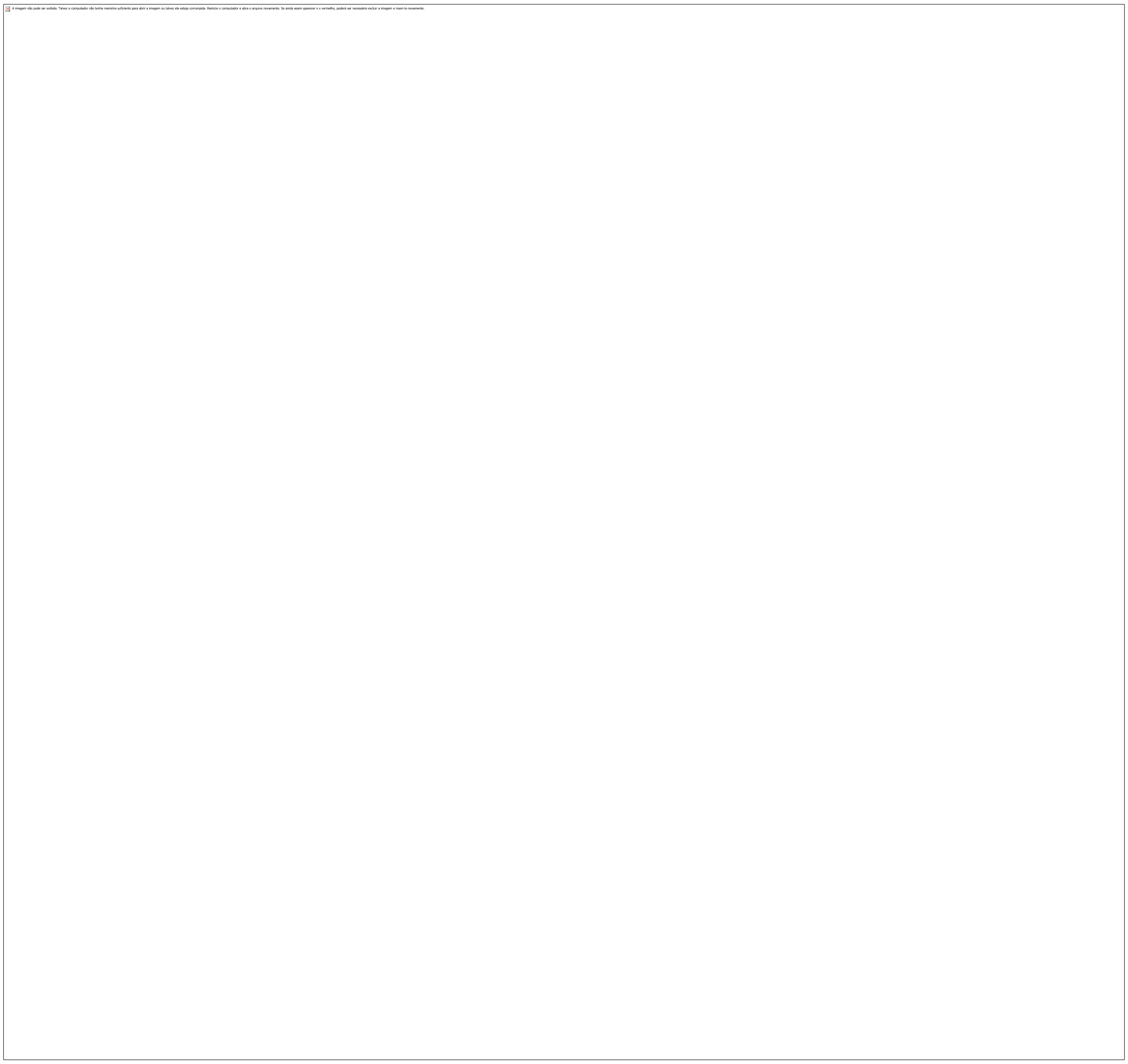
1.1 Scenarios

When the SE2900 is deployed between the access and core networks and serves as an A-SBC for signaling proxy, A-BCF data must be configured.

A-BCF data configuration includes the following:

- Configure the access-side signaling address and well-known port for signaling exchange between the SE2900 and UEs. The access-side signaling address name is for reference by **ADD SIPAN**.
- Configure the core-side signaling address and signaling address group for signaling exchange between the SE2900 and core servers. The core-side signaling address group name is for reference by **ADD ART** and **ADD PCSCF**.

UE A and UE B are registered with the same SBC, and UE Z is registered with another server. Figure 1 shows the categories and functions of A-BCF data during the registration of UE A and the call between UE A and UE Z. Figure 2 shows the categories and functions of A-BCF data during the registration of UE A and UE B and the call between UE A and UE B.



A imagem não pode ser exibida. Talvez o computador não tenha memória suficiente para abrir a imagem ou talvez ela esteja corrompida. Reinicie o computador e abra o arquivo novamente. Se ainda assim aparecer o x vermelho, poderá ser necessário excluir a imagem e inseri-la novamente.

1.2 Prerequisites

Conditions

- You have administrator rights.
- You have logged in to the SE2900.
- Software Installation is complete.

Data

Table 1 lists the A-BCF data to be planned.

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
ADD LWNPORT	Local well-known port name	SIP-UDP-5061	- These parameters are negotiated with UEs. The planned well-known port name must be the same as the server port number used by UEs. - If the server ports used by UEs are different from the default ones, plan the well-known ports. - The recommended format for **Local well-known port name** is "*application type-transport layer protocol-port number*".
	Application type	SIP(SIP)	
	Transport layer protocol	UDP(UDP)	
	Local well-known port	5061	
ADD LWNPORTG	Local well-known port group name	SIP-UDP	- The system has a default well-known port group with the name **DEFAULTLWNPORTG**. This group contains two well-known ports: **SIP-UDP-5060** and **SIP-TCP-5060**. If the default local well-known port group does not meet the requirements, configure a new one. - This parameter is planned on the SE2900. Each local well-known port group name must be

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
			unique.
	Local well-known port 1	SIP-UDP-5060	• This parameter is planned on the SE2900. Use the default well-known port name or run **ADD LWNPORT** to set a desired one. • Each local well-known port group contains 1 to 16 local well known port names.
	Local well-known port 2	SIP-UDP-5061	
ADD AADDR (Address overlapping does not exist between access networks, as shown in Figure 4.)	Signaling address name	sigclient_A	This parameter is planned on the SE2900. Each signaling address name must be unique.
	HRU module ID	151	This parameter is obtained from the planned data and is the same as the HRU module number defined by **ADD MODULE**. Both the access-side and core-side signaling addresses must reference the HRU module number of an ISU.
	Domain type	ACCESS(Access)	If the planned address is used as an access-side signaling address, the value of **Domain type** must be **ACCESS(Access)**.

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
	Local well-known port group name	SIP-UDP	This parameter is obtained from the planned data and is the same as the well-known port group name defined by **ADD LWNPORTG**.
	IPv4 address	1.1.1.10	This parameter is planned on the entire network (The IP address can be changed according to the actual networking.) Set the server address on the UE to the access-side signaling address of the SE2900.
ADD AADDR (Address overlapping exists between access networks, as shown in Figure 5.)	Signaling address name	- sigclient_A - sigclient_B	This parameter is planned on the SE2900. Each signaling address name must be unique.
	HRU module ID	151	This parameter is obtained from the planned data and is the same as the HRU module number defined by **ADD MODULE**. Both the access-side and core-side signaling addresses must reference the HRU module number of an ISU.
	Domain type	ACCESS(Access)	If the planned address is used as an access-side

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
			signaling address, the value of **Domain type** must be **ACCESS(Access)**.
	Local well-known port group name	SIP-UDP	This parameter is obtained from the planned data and is the same as the well-known port group name defined by **ADD LWNPORTG**.
	IPv4 address	- 1.1.1.10 - 1.1.2.10	This parameter is planned on the entire network (The IP address can be changed according to the actual networking.) Set the server address on the UE to the access-side signaling address of the SE2900.
	Enable VRF	Y(Yes)	- This parameter is optional and planned on the SE2900. - If address overlapping does not exist between the interconnected access network and other networks, select **N(No)** and do not plan **VRF name**. - If address overlapping exists between the interconnected access network and other networks,

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
			select **Y(Yes)** and plan **VRF name**.
	VRF name	- VRF_A - VRF_B	This parameter is obtained from the planned data and is the same as the VRF name defined by **ADD VRF**.
ADD ACNADDRG	Core-side signaling address group name	for_core_1	This parameter is planned on the SE2900. Each core-side signaling address group name must be unique. A core-side signaling address group contains multiple signaling address names. In a routing record, multiple core-side signaling addresses are associated by a core-side signaling address group name.
ADD AADDR (core-side signaling address + a fixed port)	Signaling address name	sigserver_10	This parameter is planned on the SE2900. Each signaling address name must be unique. If a fixed port is configured for the core-side signaling address, a single core-side signaling address supports the registration of the maximum number of users. Therefore, only one core-side signaling

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
			address is planned.
	HRU module ID	151	This parameter is obtained from the planned data and is the same as the HRU module number defined by **ADD MODULE**. Both the access-side and core-side signaling addresses must reference the HRU module number of an ISU.
	Domain type	CORE (Core)	If the planned address is used as a core-side signaling address, the value of **Domain type** must be **CORE(Core)**.
	Core-side signaling address group name	for_core_1	This parameter is obtained from the planned data and is the same as the core-side signaling address group name defined by **ADD ACNADDRG**.
	IPv4 address	2.2.2.1	This parameter is planned on the entire network (The IP address can be changed according to the actual networking.) For a core server, the core-side signaling addresses configured on the SE2900 are UE

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
			addresses. If a fixed port is configured for the core-side signaling address, a single core-side signaling address supports the registration of the maximum number of users. Therefore, only one core-side signaling address is planned.
ADD AADDR (core-side signaling address)	Signaling address name	- sigserver_10 - sigserver_20 - sigserver_30 - sigserver_40 - sigserver_50	This parameter is planned on the SE2900. Each signaling address name must be unique. If the port of the core-side signaling address is dynamically allocated, each core-side signaling address supports a maximum of 40,000 registered users. Plan the number of core-side signaling addresses based on the number of users. Five core-side signaling addresses are planned here.
	HRU module ID	151	This parameter is obtained from the planned data and is the same as the HRU module number defined by **ADD MODULE**. Both the access-side and core-side signaling

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
			addresses must reference the HRU module number of an ISU.
	Domain type	CORE(Core)	If the planned address is used as a core-side signaling address, the value of **Domain type** must be **CORE(Core)**.
	Core-side signaling address group name	for_core_1	This parameter is obtained from the planned data and is the same as the core-side signaling address group name defined by **ADD ACNADDRG**.
	IPv4 address	• 2.2.2.1 • 2.2.2.2 • 2.2.2.3 • 2.2.2.4 • 2.2.2.5	This parameter is planned on the entire network (The IP address can be changed according to the actual networking.) For a core server, the core-side signaling addresses configured on the SE2900 are UE addresses. If the port of the core-side signaling address is dynamically allocated, each core-side signaling address supports a maximum of 40,000 registered users. Plan the number of core-side signaling addresses

Table 1 A-BCF data to be planned

Category	Parameter Name	Example Value	Description
			based on the number of users. Five core-side signaling addresses are planned here. Core-side signaling addresses with dynamically allocated ports are recommended if an external P-CSCF is deployed.

1.3 Workflow

Figure 3 shows the index mappings for A-BCF data configuration.

Figure 3 Reference relationships for A-BCF data configuration

A imagem não pode ser exibida. Talvez o computador não tenha memória suficiente para abrir a imagem ou talvez ela esteja corrompida. Reinicie o computador e abra o arquivo novamente. Se ainda assim aparecer o x vermelho, poderá ser necessário excluir a imagem e inseri-la novamente.

1.4 Procedure

1. Access the **MML Command - SE2900** window.

   a. Log in to the OMU client.

   b. Select the required SE2900 from the **ME** drop-down list box.

2. If the server port configured on the SIP UE is not in the default well-known port group, configure well-known ports. Skip this step if the server port configured on the SIP UE is in the default well-known port group.

   a. Run **ADD LWNPORT** to add a well-known port record.

   b. Run **ADD LWNPORTG** to add a well-known port group record.

   A well-known port group contains a maximum of 16 well-known ports. The configured well-known port is used in conjunction with the access-side signaling address for receiving signaling packets from UEs.

   The default well-known port group **DEFAULTLWNPORTG** contains two well-known ports: **SIP-UDP-5060** and **SIP-TCP-5060**.

3. Run **ADD AADDR** to add an access-side signaling address record.

   Configure core-side signaling addresses.

   . Run **ADD ACNADDRG** to add a core-side signaling address group record.

   a. Run **ADD AADDR** to add a core-side signaling address record.

1.5 Verification

- In the **MML Command - SE2900** window, run **LST LWNPORT** and check whether the well-known port is configured as planned.

  If the well-known port is not configured as planned, run **RMV LWNPORT** to delete the configurations and reconfigure a well-known port.

- In the **MML Command - SE2900** window, run **LST LWNPORTG** and check whether the well-known port group is configured as planned.

  If the well-known port group is not configured as planned, run **MOD LWNPORTG** to modify the configurations.

- In the **MML Command - SE2900** window, run **LST AADDR** and check whether the IP address and well-known port group name are configured as planned.

  - If **Local well-known port group name** or **Signaling address name** is not configured as planned, run **MOD AADDR** to modify the configurations.

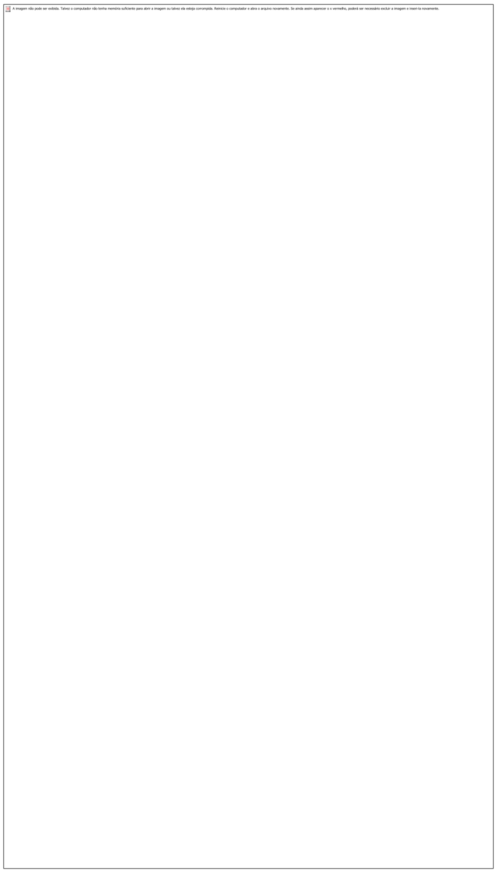
  - If **IPv4 address** is not configured as planned or parameters such as **Enable VRF** in an IP address need to be modified, run **RMV AADDR** to delete the signaling address name and then configure a desired IP address record.

1.6 Example I: Core-side Signaling Address Is Configured with a Fixed Port and No Address Overlapping Exists

Task Description

Add the access-side signaling address, well-known port, and core-side signaling address for accessing UEs on access network A. Table 1 shows details about the planned data, and Figure 4 shows the networking.

Figure 4 A-BCF networking diagram (core-side signaling address is configured with a fixed port and no address overlapping exists)



A imagem não pode ser exibida. Talvez o computador não tenha memória suficiente para abrir a imagem ou talvez ela esteja corrompida. Reinicie o computador e abra o arquivo novamente. Se ainda assim aparecer o x vermelho, poderá ser necessário excluir a imagem e inseri-la novamente.

Scripts

/*----------Configure data in the **MML Command - SE2900** window on the OMU client.----------*/

/*If the server port configured on a SIP UE is not the default well-known port, configure a well-known port. Otherwise, you do not need to add well-known ports.*/

```
ADD LWNPORT: LWNPORTNAME="SIP-UDP-5061", APPTYPE=SIP, TLPRO=UDP, PORT=5061;
```

/*If the server port configured on a SIP UE is not in the default well-known port group, add a well-known port group. Otherwise, you do not need to add well-known port groups.*/

```
ADD LWNPORTG: LWNPORTGNAME="SIP-UDP", LWNPORTNAME1="SIP-UDP-5060",
LWNPORTNAME2="SIP-UDP-5061";
```

/*Add an access-side signaling address for UEs on access network A. If all server ports configured on SIP UEs are in the default well-known port group, use the default well-known port group **DEFAULTLWNPORTG**.*/

```
ADD AADDR: ADDRNAME="sigclient_A", HRUMID=151, DMT=ACCESS, LWNPORTGNAME="SIP-
UDP", IPV4="1.1.1.10", VRFFLAG=N;
```

/*Add a core-side signaling address group for UEs on access network A.*/

```
ADD ACNADDRG: ADDRGN="for_core_1";
```

/*Add a core-side signaling address. This IP address is used for the SE2900 to interwork with core servers and specifies the signaling address converted from the source address of the packet sent from a UE on access network A.*/

```
ADD AADDR: ADDRNAME="sigserver_10", HRUMID=151, DMT=CORE,
ADDRGN="for_core_1", IPV4="2.2.2.1", VRFFLAG=N;
```

1.7 Example II: Core-side Signaling Address Is Configured with a Dynamically Allocated Port and Address Overlapping Exists Between Access Networks

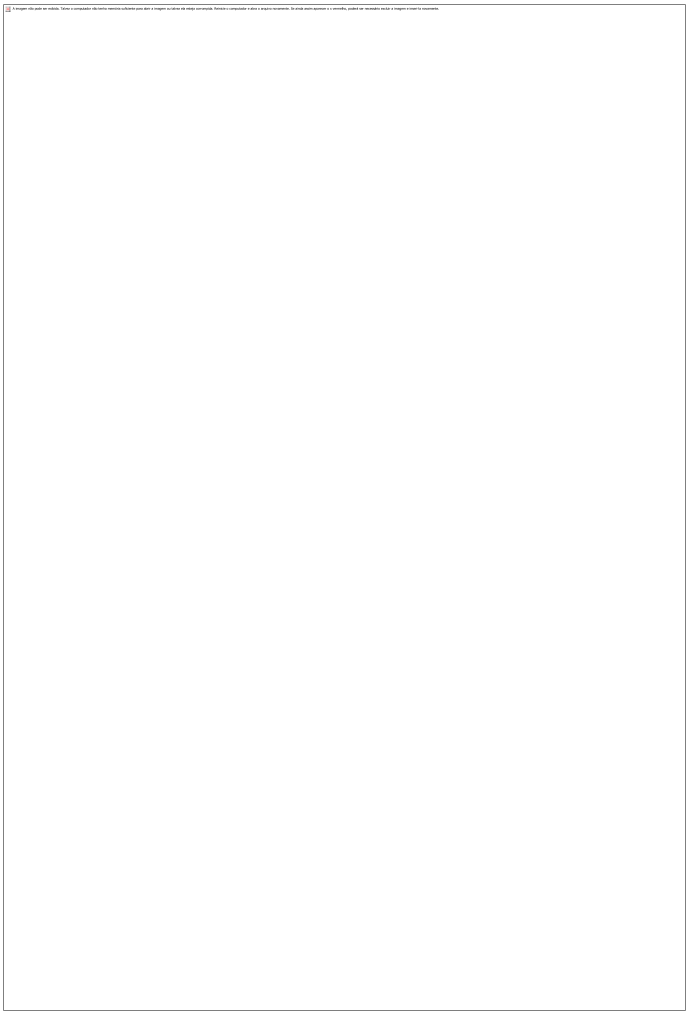
Task Description

Add the access-side signaling address, well-known port, and core-side signaling address for accessing UEs on access networks A and B. Table 1 shows details about the planned data, and Figure 5 shows the networking.

NOTE:

In the following example, address overlapping exists between access networks A and B.

Figure 5 A-BCF networking diagram (core-side signaling address is configured with a dynamically allocated port and address overlapping exists between access networks)



A imagem não pode ser exibida. Talvez o computador não tenha memória suficiente para abrir a imagem ou talvez ela esteja corrompida. Reinicie o computador e abra o arquivo novamente. Se ainda assim aparecer o x vermelho, poderá ser necessário excluir a imagem e inseri-la novamente.

Scripts

/*----------Configure data in the **MML Command - SE2900** window on the OMU client.----------*/

/*If the server port configured on a SIP UE is not the default well-known port, configure a well-known port. Otherwise, you do not need to add well-known ports.*/

```
ADD LWNPORT: LWNPORTNAME="SIP-UDP-5061", APPTYPE=SIP, TLPRO=UDP, PORT=5061;
```

/*If the server port configured on a SIP UE is not in the default well-known port group, add a well-known port group. Otherwise, you do not need to add well-known port groups.*/

```
ADD LWNPORTG: LWNPORTGNAME="SIP-UDP", LWNPORTNAME1="SIP-UDP-5060",
LWNPORTNAME2="SIP-UDP-5061";
```

/*Add an access-side signaling address for UEs on access network A. If all server ports configured on SIP UEs are in the default well-known port group, use the default well-known port group **DEFAULTLWNPORTG**.*/

```
ADD AADDR: ADDRNAME="sigclient_A", HRUMID=151, DMT=ACCESS, LWNPORTGNAME="SIP-
UDP", IPV4="1.1.1.10", VRFFLAG=Y, VRFNAME="VRF_A";
```

/*Add an access-side signaling address for UEs on access network B. If all server ports configured on SIP UEs are in the default well-known port group, use the default well-known port group **DEFAULTLWNPORTG**.*/

```
ADD AADDR: ADDRNAME="sigclient_B", HRUMID=151, DMT=ACCESS, LWNPORTGNAME="SIP-
UDP", IPV4="1.1.2.10", VRFFLAG=Y, VRFNAME="VRF_B";
```

/*Add a core-side signaling address group for UEs on access networks A and B.*/

```
ADD ACNADDRG: ADDRGN="for_core_1";
```

/*Add a core-side signaling address. This IP address is used for the SE2900 to interwork with core servers and specifies the signaling address converted from the source address of the packet sent from a UE on access network A or B.*/

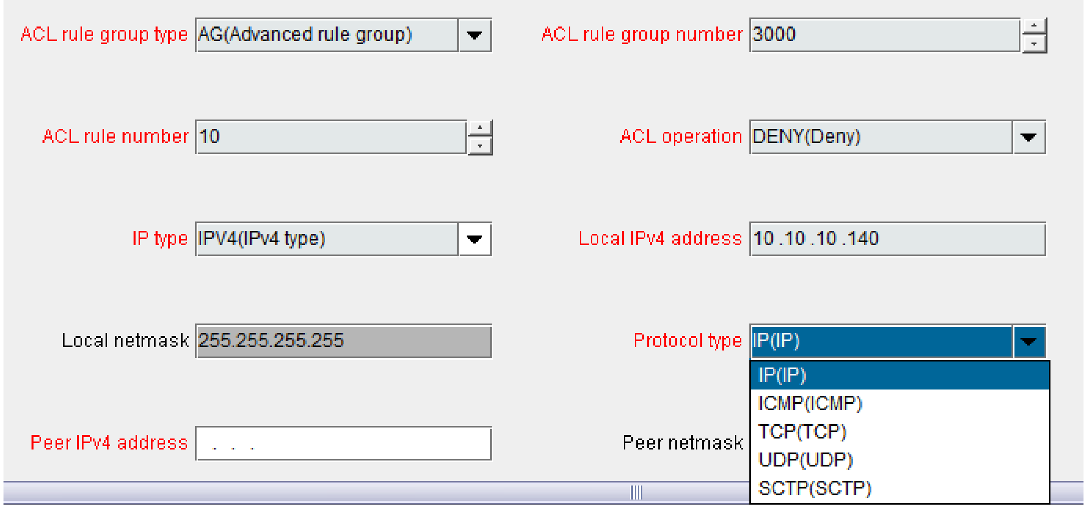
```
ADD AADDR: ADDRNAME="sigserver_10", HRUMID=151, DMT=CORE,
ADDRGN="for_core_1", IPV4="2.2.2.1", VRFFLAG=N;
ADD AADDR: ADDRNAME="sigserver_20", HRUMID=151, DMT=CORE,
ADDRGN="for_core_1", IPV4="2.2.2.2", VRFFLAG=N;
ADD AADDR: ADDRNAME="sigserver_30", HRUMID=151, DMT=CORE,
ADDRGN="for_core_1", IPV4="2.2.2.3", VRFFLAG=N;
ADD AADDR: ADDRNAME="sigserver_40", HRUMID=151, DMT=CORE,
ADDRGN="for_core_1", IPV4="2.2.2.4", VRFFLAG=N;
ADD AADDR: ADDRNAME="sigserver_50", HRUMID=151, DMT=CORE,
ADDRGN="for_core_1", IPV4="2.2.2.5", VRFFLAG=N;
```

A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

17) 1.9.13 Deve possuir controle e bloqueio de serviços, como DNS, SSH, SNMP, ICMP, FTP, FTPS, Telnet, HTTP, HTTPS e NTP.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.9.10. Todos os serviços solicitados no item podem ser bloqueado no equipamento através do software do SBC e também podem ser bloqueados diretamente no sistema operacional da solução.

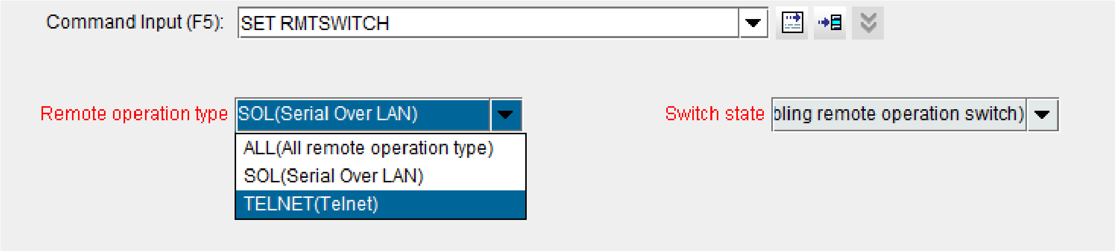
Abaixo telas de configuração para o bloqueio dos serviços:

Bloqueio do ICMP:



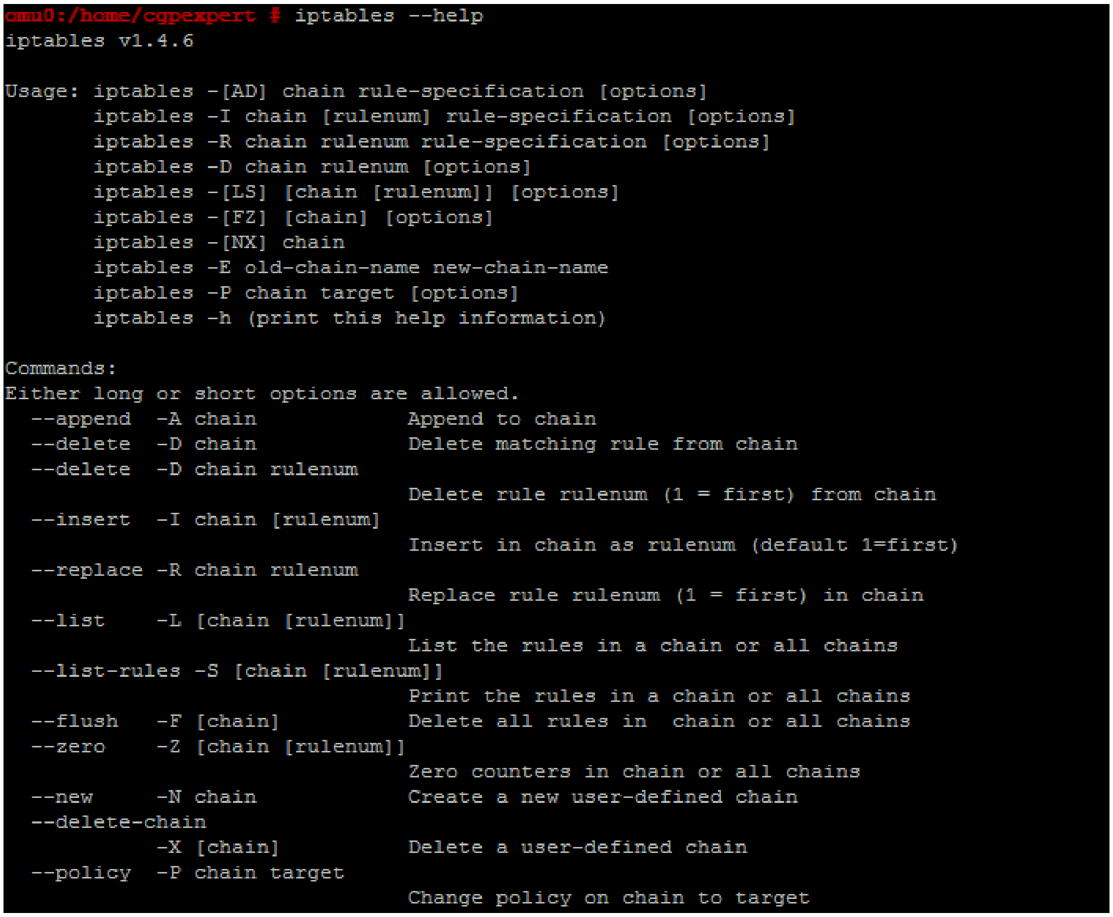
ACL rule group type: AG(Advanced rule group)
ACL rule group number: 3000
ACL rule number: 10
ACL operation: DENY(Deny)
IP type: IPV4(IPv4 type)
Local IPv4 address: 10 .10 .10 .140
Local netmask: 255.255.255.255
Protocol type: IP(IP)
Peer IPv4 address: . . .
Peer netmask

Bloqueio do Telnet:



Command Input (F5): SET RMTSWITCH
Remote operation type: SOL(Serial Over LAN)
Switch state: bling remote operation switch)

Todos os outros serviços podem ser bloqueados através do sistema operacional:



```
omu0:/home/cgpexpert # iptables --help
iptables v1.4.6

Usage: iptables -[AD] chain rule-specification [options]
       iptables -I chain [rulenum] rule-specification [options]
       iptables -R chain rulenum rule-specification [options]
       iptables -D chain rulenum [options]
       iptables -[LS] [chain [rulenum]] [options]
       iptables -[FZ] [chain] [options]
       iptables -[NX] chain
       iptables -E old-chain-name new-chain-name
       iptables -P chain target [options]
       iptables -h (print this help information)

Commands:
Either long or short options are allowed.
  --append  -A chain            Append to chain
  --delete  -D chain            Delete matching rule from chain
  --delete  -D chain rulenum
                                Delete rule rulenum (1 = first) from chain
  --insert  -I chain [rulenum]
                                Insert in chain as rulenum (default 1=first)
  --replace -R chain rulenum
                                Replace rule rulenum (1 = first) in chain
  --list    -L [chain [rulenum]]
                                List the rules in a chain or all chains
  --list-rules -S [chain [rulenum]]
                                Print the rules in a chain or all chains
  --flush   -F [chain]          Delete all rules in  chain or all chains
  --zero    -Z [chain [rulenum]]
                                Zero counters in chain or all chains
  --new     -N chain            Create a new user-defined chain
  --delete-chain
            -X [chain]          Delete a user-defined chain
  --policy  -P chain target
                                Change policy on chain to target
```

A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

18) 1.9.14 Deverá permitir o isolamento de tráfego entre redes da INFOVIA Voz com range de IP semelhantes, não sendo aceitas soluções para este item baseadas em virtualização de *endpoints*.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.9.14. O equipamento SE29000 permite isolar o trafego entre as diversas redes com range de IP semelhantes, essa funcionalidade é chamada de Address Overlapping.

Abaixo transcrição de parte do texto do documento *SE2900 Product Description - 4.3.4 Address* Overlapping

1.7.1 *Address Overlapping*

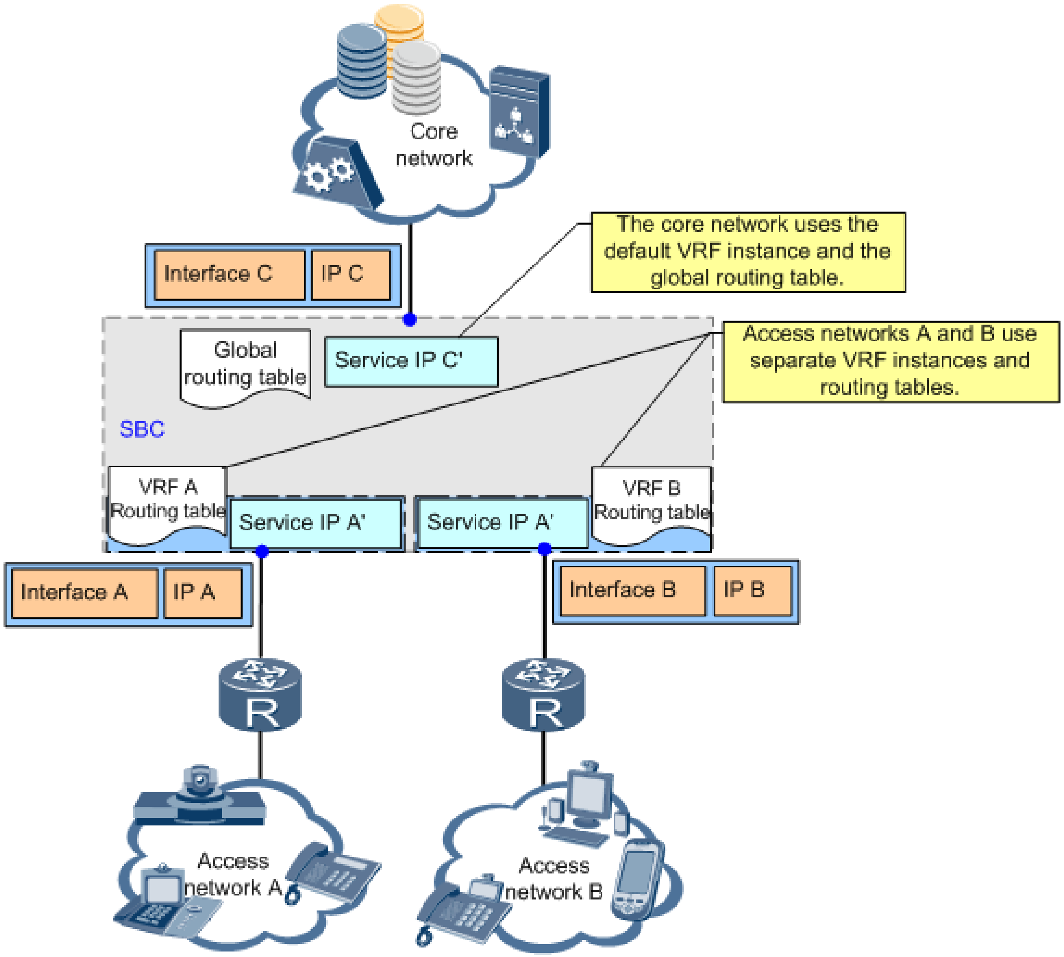
Virtual Routing and Forwarding (VRF) is a technology that allows multiple instances of a routing table to coexist on the SE2900, which is used to implement address overlapping. Packets are sent and received independently in each VRF instance. Routing instances are independent of each other, with their own routing entries, interfaces, and IP addresses. The overlapping IP addresses/segments can be used in different routing instances without conflicting with each other.

The SE2900 allows access network addresses to overlap with each other, core network addresses to overlap with each other, and access network addresses and core network addresses to overlap with each other. Address overlapping implements the sharing of IP addresses/segments and simplifies the service and application configurations on different access networks. Address overlapping saving the IP address, and much more compatible with live network.

Overlapping Between Access Network Addresses

Two access networks with overlapping IP addresses/segments connect to the same SE2900. Figure 1-1 shows the networking for overlapping between access network addresses.

Figure 1-1 *Overlapping between access network addresses*



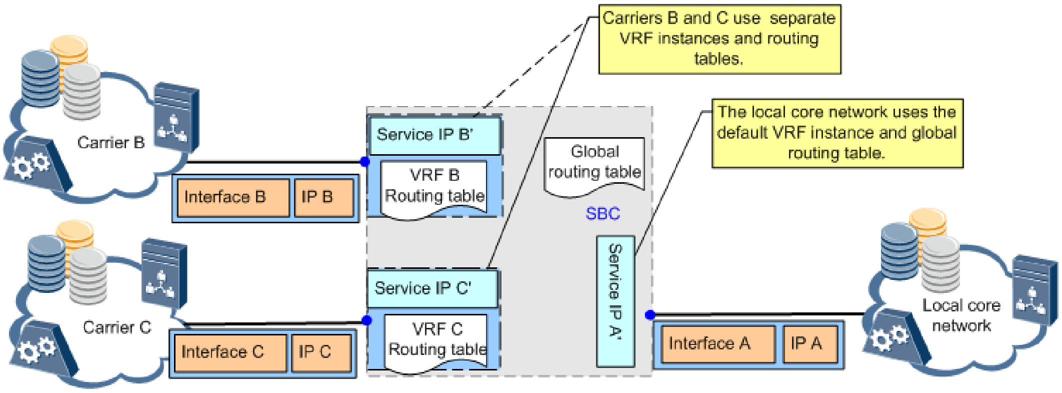
In Figure 1-1, access networks A and B connect to the SBC. Access network A is at 10.0.0.0/8, while access network B is at 10.2.0.0/16. The two network segments are overlapping. All the packets whose destination addresses belong to 10.2.0.0/16 are sent to access network B through interface B. The UEs at 10.2.0.0/16 on access network A cannot access services.

To address the issue, the SBC separates the two access networks to different VRF instances.

Overlapping Between Core Network Addresses

Two core networks with overlapping IP addresses/segments connect to the same SE2900. Figure 1-2 shows the networking for overlapping between core network addresses.

Figure 1-2 *Overlapping between core network addresses*



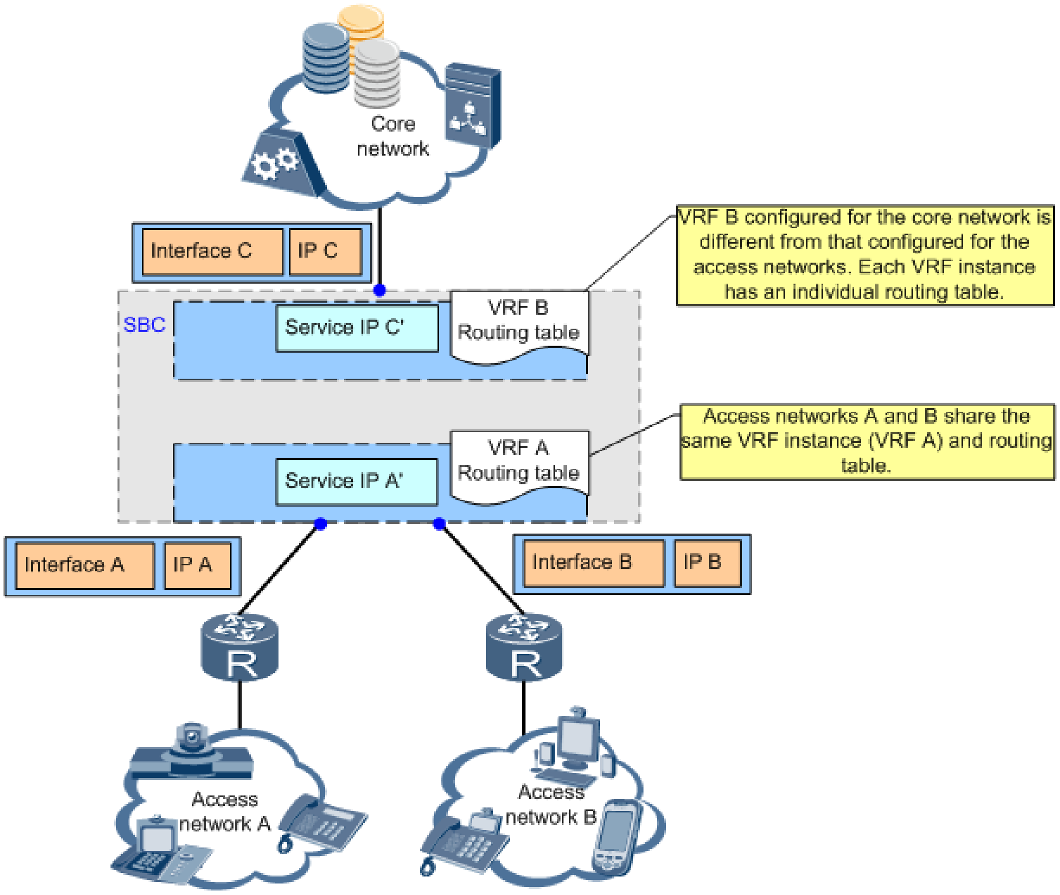
In Figure 1-2, the core network of carrier B is at 11.0.0.0/8, where the core network of carrier C is at 11.0.0.0/16. The two network segments are overlapping.

The SBC separates the two core networks to different VRF instances so that the UEs on access networks can access services.

Overlapping Between Access Network Addresses and Core Network Addresses

Access networks and core networks with overlapping IP addresses/segments connect to the same SE2900. Figure 1-3 shows the networking for overlapping between access network addresses and core network addresses.

Figure 1-3 *Overlapping between access network addresses and core network addresses*


Core network
Interface C
IP C
SBC
Service IP C'
VRF B Routing table
VRF B configured for the core network is different from that configured for the access networks. Each VRF instance has an individual routing table.
Service IP A'
VRF A Routing table
Access networks A and B share the same VRF instance (VRF A) and routing table.
Interface A
IP A
Interface B
IP B
R
R
Access network A
Access network B

In Figure 1-3, access networks A and B are at 10.0.0.0/8, where the core network is at 10.0.0.0/8. The two network segments are overlapping. The UEs on access networks A and B cannot access services.

To address the issue, the SBC separates the access networks and the core network to different VRF instances.

A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

18) 1.10.3 Deve enviar *log* para múltiplas consoles de gerenciamento, simultaneamente.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.10.3. O equipamento permite o envio de logs para múltiplas consoles de gerenciamento e para múltiplos servidores syslogs.

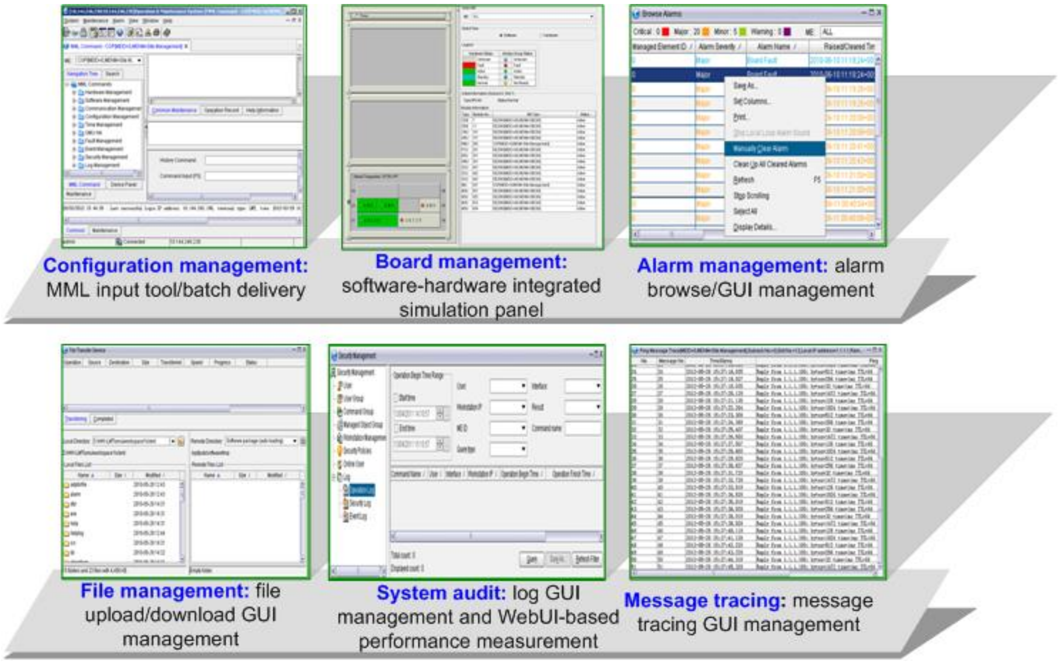
Abaixo transcrição de parte do texto do documento *SE2900 Product Description - 3.5 Efficient Operation and Maintenance.*

1.8 *Efficient Operation and Maintenance*

Unified Operation and Maintenance Platform

The SE2900 uses the Huawei proprietary operation and maintenance unit (OMU), as shown in Figure 1-4. The OMU supports unified, efficient, and visible operation and maintenance.

Figure 1-4 *Unified operation and maintenance platform*



Configuration management: MML input tool/batch delivery

Board management: software-hardware integrated simulation panel

Alarm management: alarm browse/GUI management

File management: file upload/download GUI management

System audit: log GUI management and WebUI-based performance measurement

Message tracing: message tracing GUI management

Table 1-1 *Unified operation and maintenance platform*

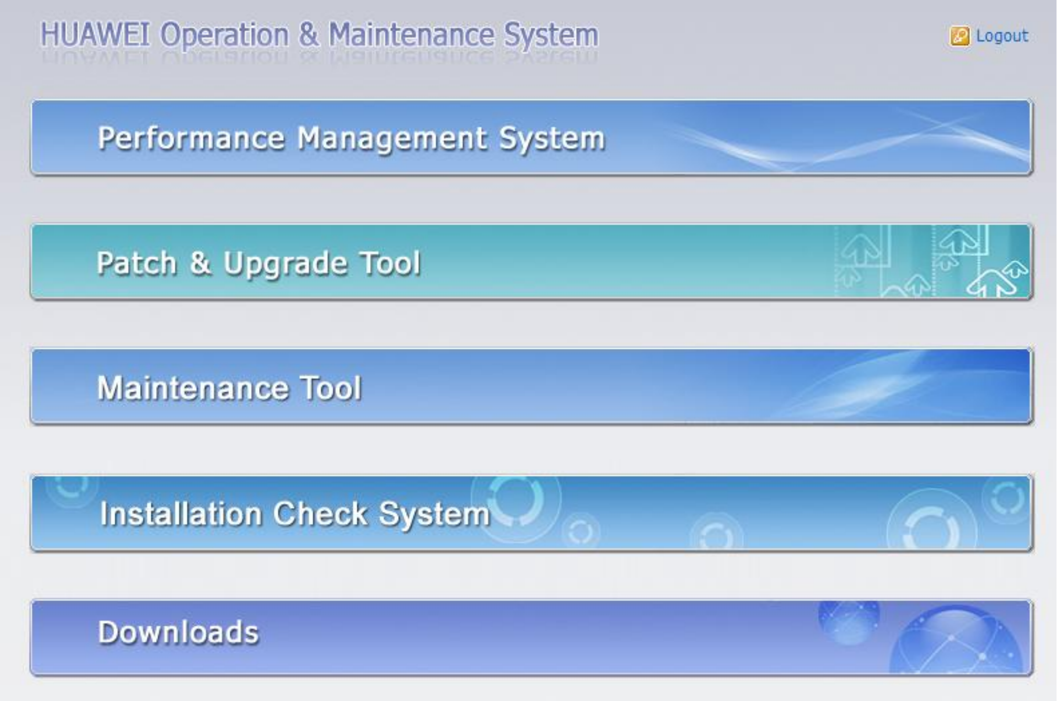
Function	*Highlight*
Configuration management	*Provides an operation interface based on the man-machine language (MML) and graphic user interface (GUI) for local and remote maintenance.*
Board management	*Displays the active/standby status and operating status and board reset/switchover operation on the client.*

Function	*Highlight*
Alarm management	*Supports real-time alarm reporting when a fault occurs and marks alarm severities using different colors in the alarm browse window. This function helps facilitate immediate fault identification and rectification.*
File management	*Supports easy and visualized file upload/download to boards on the client.*
System audit	*Supports log query, alarm query, and web user interface-based (WebUI-based) performance measurement and fault diagnosis. This function facilitates fault identification and rectification, and provides a reference for network maintenance and optimization.*
Message tracing	*Supports the signaling tracing function. Signaling can be traced based on the IP address, port number, or signaling link. Carriers can use the signaling tracing function to trace detailed signaling messages exchanged in procedures, such as registration, call establishment and release, and subscription and notification, of a specific call. The SE2900 supports end-to-end signaling tracing tasks and displays signaling tracing results on the EMS, which improves the fault location efficiency.*

GUI-based WebUI Interface

The SE2900 supports the GUI-based web user interface (WebUI), as shown in Figure 1-5. The WebUI integrates performance management and patch and upgrade tools.

Figure 1-5 *GUI-based WebUI*


HUAWEI Operation & Maintenance System
Logout
Performance Management System
Patch & Upgrade Tool
Maintenance Tool
Installation Check System
Downloads

The WebUI enables web-based GUI operations in routine maintenance. You can use the GUI for performance management (for example, creating a traffic measurement task), patch installation, and version upgrade. GUI-based maintenance improves operability, facilities operation and maintenance, and reduces the risks of misoperation.

A comprovação do item está descrita na carta oficial do fabricante e poderá ser verificada na faze de amostra com a homologação do produto.

19) 1.10.4.11 Deve manter registros para auditoria das ações efetuadas pelos administradores do equipamento.
RESPOSTA: A solução SE2900 atende integralmente ao item 1.10.4.11. O equipamento possui registros de todas as atividades efetuadas pelos administradores e operadores do equipamento.

Abaixo transcrição de parte do texto do documento *SE2900 Product Description - 8.4 Security Management.*

Log management	*You can query man-machine language (MML) operation records using the SE2900 O&M system. You can check whether service-affecting operations are performed on the SE2900 that cause a fault. The SE2900 O&M system provides security logs that record operations related to system security (for example, logging in to the LMT client). These logs help identify intrusions, restore the system, measure system resource usage, audit operations, and provide electronic evidence on operations.*

System audit	*Supports log query, alarm query, and web user interface-based (WebUI-based) performance measurement and fault diagnosis. This function facilitates fault identification and rectification, and provides a reference for network maintenance and optimization.*