GENESYS™

SIP Cluster Solution Guide

Configuring DNS Records

5/4/2025

Contents

Configuring DNS Records

> ### Important
> SIP Cluster solution is under restricted availability. Contact Product Management for more information.

SIP Cluster SIP connectivity relies on SIP Cluster Fully Qualified Domain Name (FQDN) with SRV-based name resolution.

SRV-type records for the SIP Cluster are registered in a geo-aware DNS zone. The same SIP Cluster FQDN is used in each data center. The same priority, weight, and port must be specified within the SRV records.

All SIP Proxies in the SIP Cluster use the same port number (**sip-port**) for SIP signaling. Each SIP Proxy runs on its own machine and uses its own IP address. For a given data center, the SRV records resolve into the IP addresses of the SIP Proxies located in this data center and the port number used by all SIP Proxies. SIP Server, Resource Managers, the Session Border Controller (SBC), and SIP Phones distribute SIP requests across the SIP Proxies according to the DNS resolution and in the load-balancing manner that they support. See the SIP Proxy IP address and DNS mapping example below.

A SIP Phone or SBC can distribute requests across all local operational proxies, or can persist with one SIP Proxy as long as the SIP Proxy is operational.

Required Provisioning

- The Host name on which SIP Proxy is installed: The FQDN specified as the target within the Record Data of the SRV records should be identical to the FQDN specified as the Host name of the Host object. If the Host object uses an IP address and does not use an FQDN, the FQDN specified within the SRV record must resolve into this IP address specified as the Host name of the Host object.

- The **sip-port** of the SIP Proxy application: The port number specified within the Record Data of the SRV records must be identical to the port number specified in the **sip-port** parameter on the Server Info tab of the SIP Proxy application.

- The FQDN that resolves to the SRV list of the SIP Proxy addresses is specified in the SIP Outbound Proxy DN configuration, including transport:
    - **contact**
    - **external-contact**

- If the SBC or SIP Phones do not support SRV name resolution, specify another FQDN in the **external-contact** option. This FQDN should be registered as an Address-type record and should be resolved using A or AAAA type queries.

Example: SIP Proxy IP address and DNS mapping
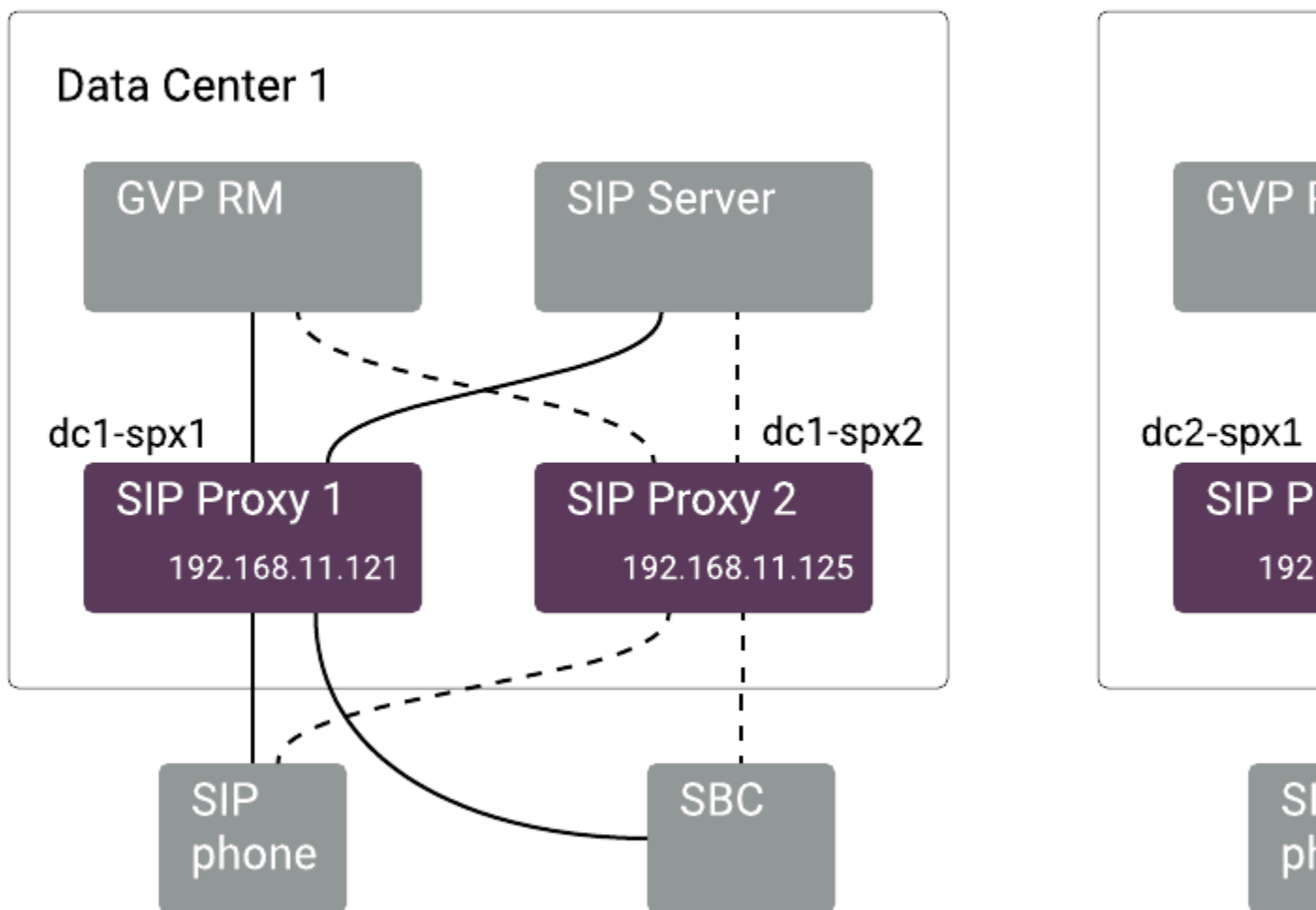
DNS record mapping example (click to expand)

In data center 1 (DC1), SIP Cluster SIP connectivity as follows:

- SIP Proxies:
    - DC1 SIP Proxy 1: 192.168.11.121
    - DC1 SIP Proxy 2: 192.168.11.125
- DNS records for the SIP Proxy machines:

- **dc1-spx1**.example.com. IN A 192.168.11.121
- **dc1-spx2**.example.com. IN A 192.168.11.125

In data center 2 (DC2), SIP Cluster SIP connectivity as follows:

- SIP Proxies:
    - DC2 SIP Proxy 1: 192.168.22.121
    - DC2 SIP Proxy 2: 192.168.22.125
- DNS records for the SIP Proxy machines:
    - **dc2-spx1**.example.com. IN A 192.168.22.121
    - **dc2-spx2**.example.com. IN A 192.168.22.125

As shown in the diagram, the SBC and GVP Resource Manager send new SIP requests to the local SIP Cluster SIP Proxies. Geo-aware name resolution enables local SIP signaling of the SIP requests delivered to the SIP Cluster.

SRV records for SIP Cluster: UDP protocol example

- SIP Proxies listen on port **5060**
- The SIP Cluster FQDN: **spx-srv**.example.com

For the systems that prefer SIP signaling through the SIP Proxy located in data center 1 and use the UDP protocol for SIP signaling (usually phones and the SBC), the geo-aware name zone should include SRV records as follows:

- _sip._udp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc1-spx1**.example.com.
- _sip._udp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc1-spx2**.example.com.
- _sip._udp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc2-spx1**.example.com.
- _sip._udp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc2-spx2**.example.com.

For the systems that prefer SIP signaling through the SIP Proxy located in data center 2 and use the UDP protocol for SIP signaling (usually phones and the SBC), the geo-aware name zone should include SRV records as follows:

- _sip._udp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc2-spx1**.example.com.
- _sip._udp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc2-spx2**.example.com.
- _sip._udp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc1-spx1**.example.com.
- _sip._udp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc1-spx2**.example.com.

SRV records for SIP Cluster: TCP protocol example

- SIP Proxies listen on port **5060**
- The SIP Cluster FQDN: **spx-srv**.example.com

For the systems that prefer SIP signaling through the SIP Proxy located in data center 1 and use the TCP protocol for SIP signaling (usually SIP Server and GVP RM), the geo-aware name zone should include SRV records as follows:

- _sip._tcp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc1-spx1**.example.com.
- _sip._tcp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc1-spx2**.example.com.
- _sip._tcp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc2-spx1**.example.com.
- _sip._tcp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc2-spx2**.example.com.

For the systems that prefer SIP signaling through the SIP Proxy located in data center 2 and use the TCP protocol for SIP signaling (usually SIP Server and GVP RM), the geo-aware name zone should include SRV records as follows:

- _sip._tcp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc2-spx1**.example.com.
- _sip._tcp.**spx-srv**.example.com. IN SRV 10 50 5060 **dc2-spx2**.example.com.
- _sip._tcp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc1-spx1**.example.com.
- _sip._tcp.**spx-srv**.example.com. IN SRV 200 50 5060 **dc1-spx2**.example.com.

SIP registration in failover scenarios based on SRV records

Create DNS SRV records for your SIP Cluster as described in the previous section. The components that communicate with the SIP Proxy directly use this FQDN.

If your SIP phones communicate with the SIP Cluster via SBCs, define an additional FQDN of the SIP Cluster and an FQDN for each SBC. The IP address of each SBC is defined by your telecom team. For each SBC, create A-type record that resolves the SBC FQDN into the IP address of this SBC.
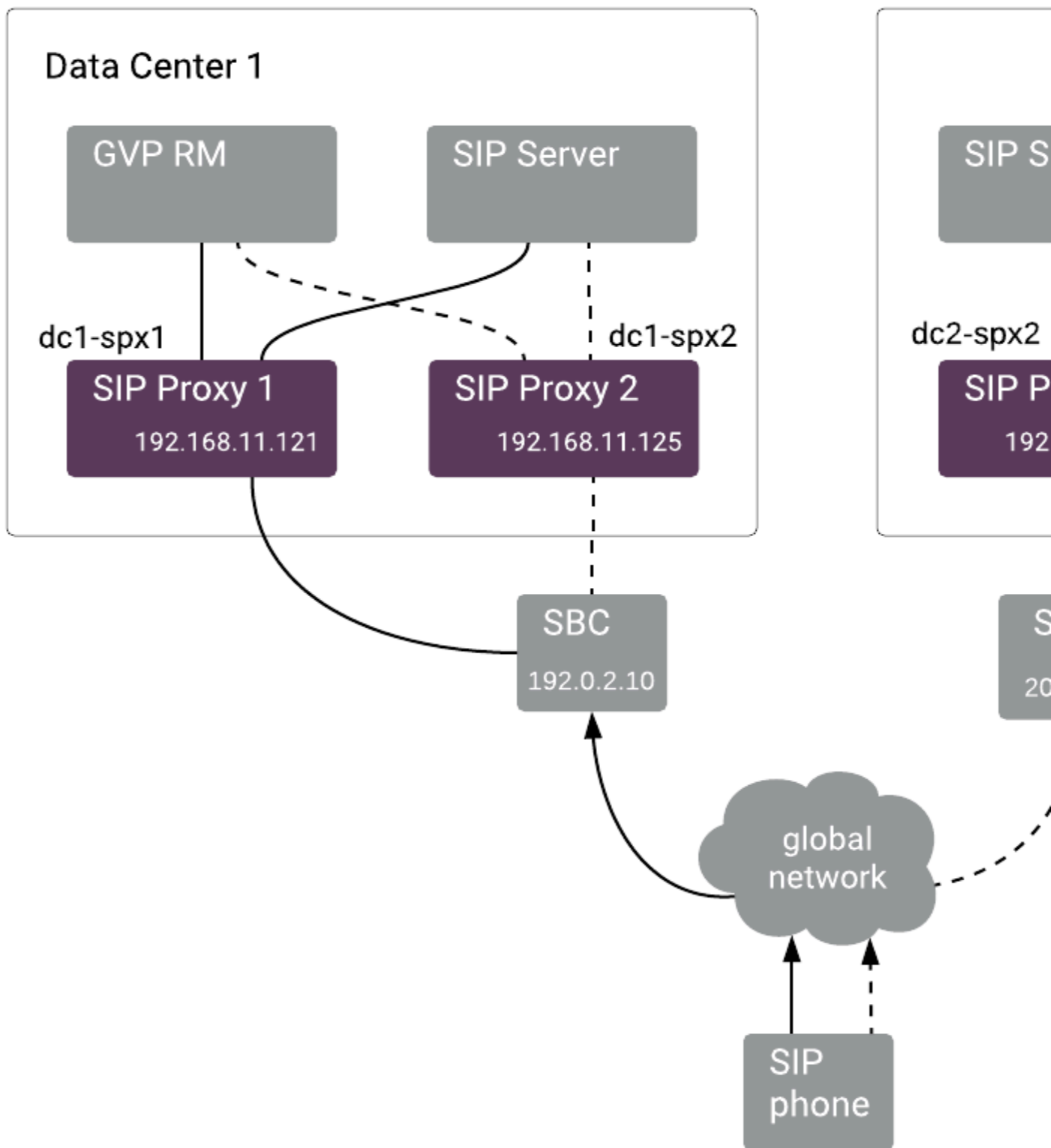
Create SRV records that the phones will use, as follows:

- Specify FQDNs of the SBC in the Record Data of the SRV records.
- Configure priority and weight within the SRV records according to data center priorities in your environment.

The SRV records priorities instruct the phones to establish SIP registration with the primary data center and use the second data center as last resort. Each SIP phone attempts to register with the primary data center. If the primary data center is inaccessible, the phone registers with the secondary data center.

A phone keeps renewing its registration with a data center, either the primary or the secondary one. The phone will re-attempt registration with the primary data center when one of the following occurs:

- the phone is restarted
- the secondary data center is no longer accessible
- the new agent's login session is initiated (WWE starts the phone on agent login when configured in a Connector mode)

Data Center 1

GVP RM

SIP Server

SIP S

dc1-spx1

dc1-spx2

dc2-spx2

SIP Proxy 1
192.168.11.121

SIP Proxy 2
192.168.11.125

SIP P
192

SBC
192.0.2.10

S
20

global
network

SIP
phone

Failover scenario (click to expand)

IP address and SRV records example

Primary data center 1 connectivity:

- SBC IP address: 192.0.2.10
- DNS record for the SBC: **sip-dc1**.example.com. IN A 192.0.2.10

Recovery data center 2 connectivity:

- SBC IP address: 203.0.113.10
- DNS record for the SBC: **sip-dc2**.example.com. IN A 203.0.113.10

FQDN for SRV-based name resolution: sip-dc.example.com

- Best priority path (10) is via data center 1 SBC (port 6000) would be:
    _sip._udp.sip-dc.example.com. IN SRV **10** 50 6000 **sip-dc1**.example.com.
- Lower priority path (20) is via data center 2 SBC (port 6000) would be:
    _sip._udp.sip-dc.example.com. IN SRV **20** 50 6000 **sip-dc2**.example.com.

Provisioning for non-geo-aware DNS

If a geo-aware DNS is not available in a SIP Cluster deployment, the SBC must be configured to forward SIP REGISTER requests to SIP Proxy instances in only *one* data center, co-located with the SBC.