

Summary

The *N-Squared Specialized Resource Platform (N2SRP)* is a multi-protocol SIP voice-channel IVR for Telecommunications operators.

The N2SRP solution offers CAMEL/INAP, VXML, MSML, and standalone scripting logic scenarios, with additional customization features via database (local or remote, relational or MongoDB), REST/SOAP API, and other integration points.

Control Logic Options

The interaction control engine is purpose-designed to support diverse control protocols on a single node. Currently available as out-of-the-box options are:

- A. Traditional INAP/CAMEL over SIGTRAN M3UA.
- B. VXML Server instruction fetch.
- C. MSML in SIP INFO from the SIP Switch.
- D. Local services using the Lua scripting language and API.

The Lua scripting framework also allows the development of custom control logic integration.

Variable Part Synthesis

N2SRP performs synthesis for “variable parts” in various languages.

Number, Digit String, Date, Time, Price are supported, depending on individual language.

Each language is implemented in an independent synthesis codec.

Common Architectural Framework

The solution runs on the N2SVCD (N-Squared Service Daemon) framework which underlies the entire suite of N-Squared products including the N2IWF Interworking Function, N2ACD Automated Call Distribution, N2NP Number Portability, N2CUG Closed User Group, and other solutions from the N-Squared telco product range.

The N2SVCD uses a shared-memory message bus, and allows for cross-protocol orchestration using dedication micro-architecture applications which can (in most cases) be repeated for additional scaled performance to take full advantage of multi-core architectures.

SIP & RTP Protocol Support

Standard RFC 3261 inbound A-Leg SIP INVITE is used for call set-up, including support for most relevant standard messages and extensions such as Early Media 18x, Late SDP Offer, PRACK, 401 Authentication, SIP REGISTER, SIP INFO, etc.

Audio is via RTP using G.711 μ -Law, A-Law, or AMR Wideband. DTMF detection is via in-band RTP telephony-event, SIP INFO, or Goertzel FFT in software.

B-Leg pass-through is implemented with the N2SRP acting as a Back-to-Back User Agent (B2BUA) sitting in the SIP control path, but not involved in the RTP packet stream (transcoding/RTP-relay is not performed).

Refer to the *N2SRP SIP-SDP-RTP Product Conformance Guide* (PDF) for additional information including message flows for all supported scenarios.

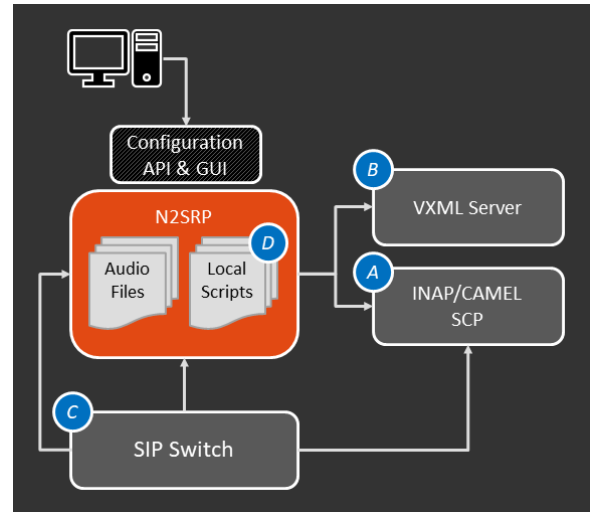


Figure 1 - N2SRP Integration

Key Protocol Specifications

- ETSI INAP (ETS 300 374-1)
- CAMEL Phase 2+ (ETSI TS 101 046)
- SIGTRAN (RFC 2960, 4666, 3868)
- SIP (RFC 3261)
- RTP (RFC 3550)
- RTP DTMF (RFC 4733)

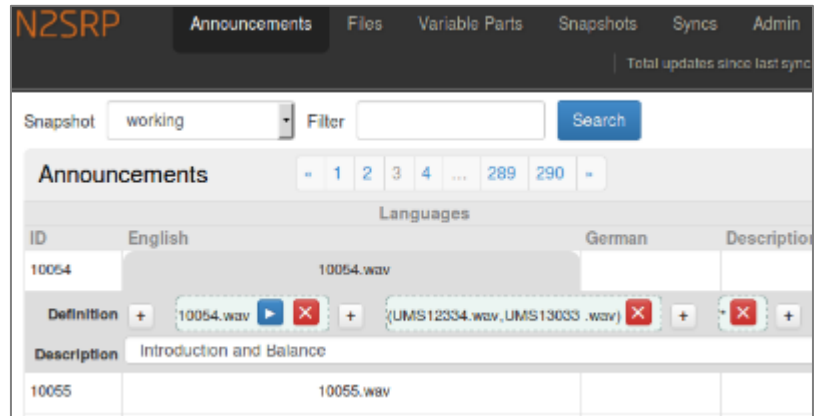
Note: Protocols are supported to the extent necessary for advertised features.

Provisioning Interface

Audio mapping configuration for N2SRP is managed via an intuitive web-based provisioning interface. Fine-grained security control allows Telcos to grant secure self-management of announcements to resellers and virtual network operators.

Key Features:

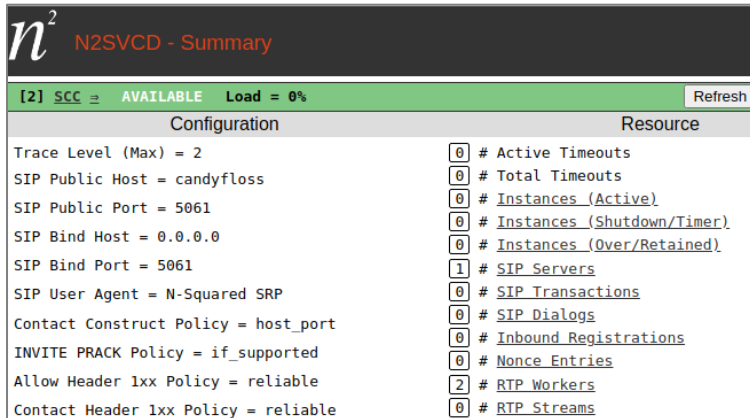
- Secure in-browser management.
- REST API for automated provisioning.
- User-based resource access control.
- Automatic format conversion.
- In-browser audio playback.
- Version control & backup/restore.
- Integrated Node Synchronisation



All provisioning features are also available via REST API.

Platform Management & Control

The N2SRP service layer includes a web-based interface for interaction with the run-time service-layer components.



Via web-browser, system administrators may:

- View running configuration.
- Track service statistics.
- Interrogate in-progress calls.
- Monitor resource usage.
- View system alarms.
- Modify platform configuration.

All administration features are also available via REST API.

Platform Monitoring & Reporting

Platform activities are reported by:

- Alarms off-platform via SNMP.
- Statistics off-platform via Graphite (Etsy/StatsD).
- Call Data Records in flat-file format.

Support & Maintenance

N-Squared offers ongoing 24/7 platform support and maintenance contracts for all framework solutions.

About N-Squared

N-Squared is based in New Zealand.

We are specialist providers of products and services for the Telecommunications domain.