

## Summary

The *N-Squared Specialized Resource Platform (N2SRP)* is a cost-effective, industry-grade INAP-controlled Intelligent Peripheral (IP) or Specialized Resource Function (SRF) using SIP voice-channel trunking.

Running on commodity x86-64 hardware/VM under all major modern Linux variants, the *N2SRP* solution combines easy scalability and simple service design with modern management/integration and low operational overhead.

## Interaction Features

N2SRP performs text-to-speech for INAP standard “variable parts” (*Number, Digit String, Date, Time, Price*).

Each language is implemented in a separate plug-and-play codec. New languages can be provided on request.

## External INAP-Controlled Logic

The N2SRP is an announcement platform only. It operates under the control of any external INAP/CAP-compliant Service Control Platform (SCP) via:

- **AssistRequestInstructions**
- **PlayAnnouncement**
- **PromptAndCollectUserInteraction**

N-Squared can also provide a standalone SIP IVR product with a self-contained, full-featured, on-platform scripted logic environment.

## SIP & RTP Protocol Support

Standard RFC 3261 SIP INVITE is used for call set-up, including support for most relevant standard messages and extensions such as Early Media 183, PRACK, 401 Authentication, SIP REGISTER, SIP INFO, etc.

Audio is via RTP using G.711 or other open codecs. DTMF detection is via in-band RTP telephony-event, SIP INFO, or Goertzel FFT in software.

## Graphical 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

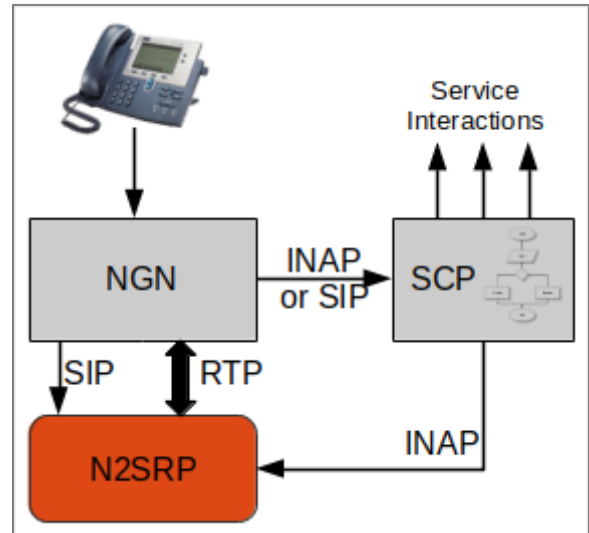
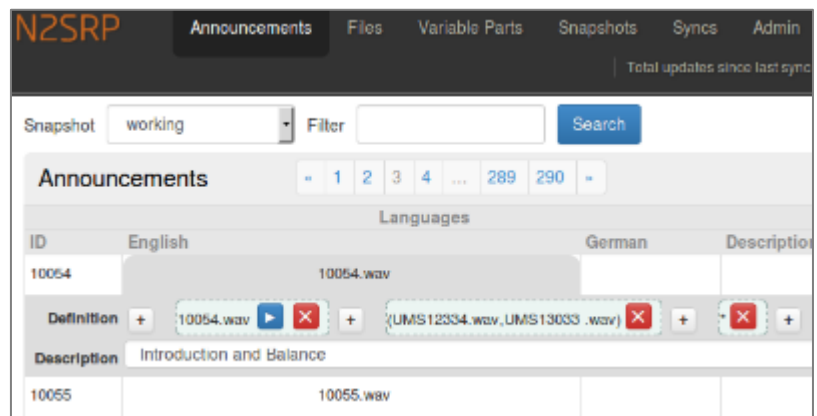


Illustration 1: N2SRP + INAP SCP

### 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.



## Platform Management & Control

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

Configuration		Resource	
Trace Level (Max) = 2		0	# Active Timeouts
SIP Public Host = candyfloss		0	# Total Timeouts
SIP Public Port = 5061		0	# Instances (Active)
SIP Bind Host = 0.0.0.0		0	# Instances (Shutdown/Timer)
SIP Bind Port = 5061		0	# Instances (Over/Retained)
SIP User Agent = N-Squared SRP		1	# SIP Servers
Contact Construct Policy = host_port		0	# SIP Transactions
INVITE PRACK Policy = if_supported		0	# SIP Dialogs
Allow Header 1xx Policy = reliable		0	# Inbound Registrations
Contact Header 1xx Policy = reliable		0	# Nonce Entries
		2	# RTP Workers
		0	# RTP Streams

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.

## Platform Monitoring & Reporting

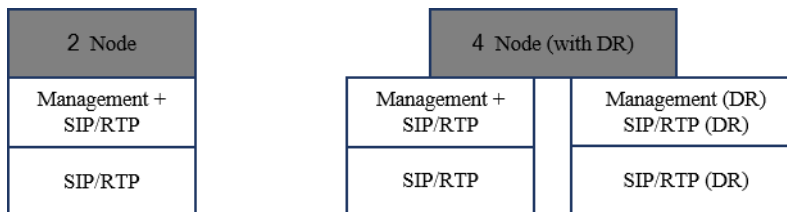
Platform activities are reported by:

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

## Scalability & Redundancy

The modular architecture of N2SRP supports flexible HA and DR deployment models.

For example:



## Technical Guide & Protocol Conformance

Full Technical Guide and Protocol Conformance Statements are available online at:

<https://www.nsqared.nz/product/n2srp.html>

## Support & Maintenance

Ongoing 24/7 platform support and maintenance contracts are offered.

## About N-Squared

N-Squared is an Oracle Gold Partner based in New Zealand. We are specialist providers of products and services for the Telecommunications domain.

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