Summary

The *N-Squared Specialized Resource Platform (N2SRP)* is a cost-effective, industry-grade SIP IVR platform for mid-sized core networks.

Built on Linux and commodity hardware (including VMs), the *N2SRP* solution combines easy scalability and simple service design with modern management features and low operational costs.

INAP-Controlled or Standalone Service Logic

The N2SRP supports local or external SCP-controlled service logic:

- Local Service Logic, defined on-platform in free-form scripting language, *and/or*
- External Service Logic controlled by an INAP SCP (e.g. Oracle's OCNCC platform).

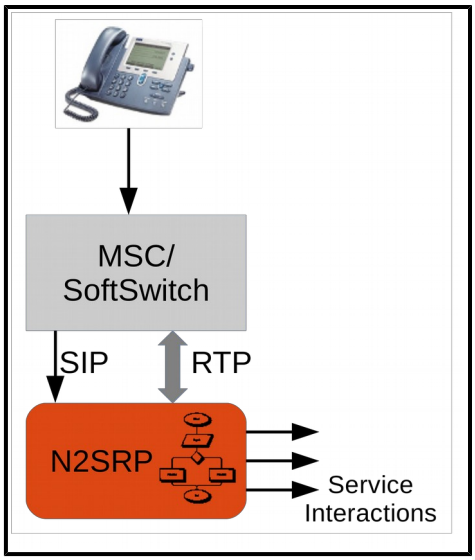


Illustration 1: Standalone N2SRP

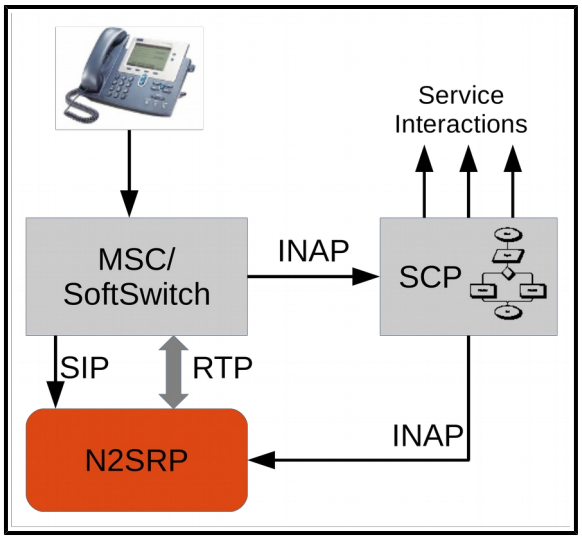


Illustration 2: N2SRP + INAP SCP

Feature Sets

In Standalone Mode, N2SRP supports the full-featured LUA scripting language, plus a set of useful external Service Interactions:

- ***Diameter Event Requests***
- ***SOAP/REST Method API***
- ***DB Query & Update***
- ***LDAP Lookup***

When controlled by an INAP SCP platform, the N2SRP acts under the control of the standard SCP-SRP interface, using INAP:

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

In each case, the N2SRP supports flexible audio RTP interactions:

Static Audio File – Number Expansion – Date/Time Logic – Plural/Singular – DTMF Input

SIP & RTP Protocol Support

Standard RFC 3261 SIP INVITE is used for call set-up, including the option for Early Media 183.

Audio is via RTP µlaw, with DTMF via in-band RTP telephony-event or Goertzel FFT.

Additional Language Codecs

Construction of numbers and dates requires a per-language Codec. English language is included as standard. Additional Language Codecs are available on-request

Text-To-Speech

The *N-Squared SIP SRP* can perform on-demand Text-To-Speech conversion as an optional extended feature. An embeddable third-party library is used to provide this functionality (such as the Cepstral third-party voice suite).

Audio Recording

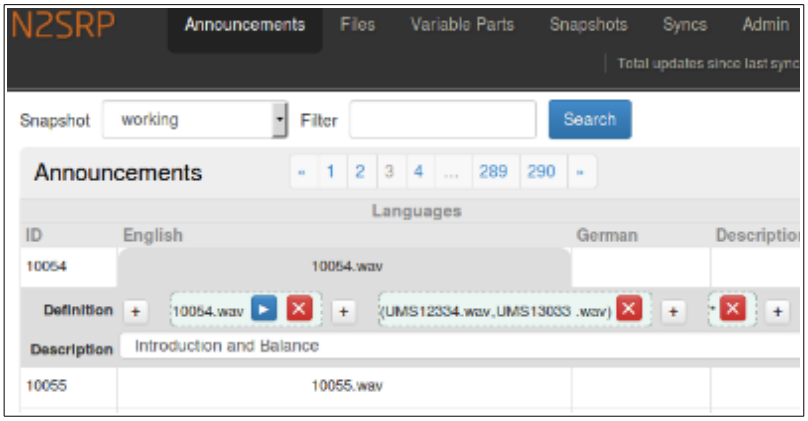
Audio Recording is available as an optional feature (may be limited by availability of SCP support).

Graphical Provisioning Interface

Audio mapping configuration for *N2 SIP SRP* 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 Management Interface
- User-Based Resource Access
- Automatic Format Conversion
- In-Browser Audio Playback
- Per-File Version Control & Backup
- Global Snapshot & Restore
- Integrated Node Synchronisation



Platform Management & Control

The *N2 SIP SRP* service layer includes a web-based point-and-click interface for interaction with the run-time service-layer components.

N2SVCD - Status

Now: 2014-10-08 17:59:44.259114

#	App Name	Resources	Statistics	Configuratic
0	Manage	1=# Active Instances 0=# Queued Timeouts	1=# Instances Started	HTTP Host=0.0.0.0 HTTP Port=8088
1	SIGTRAN	1=# Connections 1=# Routes 0=# Handlers 0=# Active TIDs 0=# Posthumous TIDs 0=# Open Correlations	0=# TCAP Sent 0=# TCAP Sent BEGIN 0=# TCAP Sent CONTINUE 0=# TCAP Sent END 0=# TCAP Sent ABORT 0=# TCAP Rcvd 0=# TCAP Rcvd BEGIN 0=# TCAP Rcvd CONTINUE 0=# TCAP Rcvd END 0=# TCAP Rcvd ABORT	Own SSN =10 Own Point Code =4114 Own Global Title=
2	SRP	2=# Languages 1=# SCP Addresses 2=# RTP Workers 1=# SIP Connections 0=# Active SIP Instances 0=# Transaction IDs 0=# Queued Timeouts		SIP Protocol =udp SIP Host =0.0.0.0 SIP Port =5060 Correlation ID Len =3 SCP ID Len =1 RTP Local IP =10.42.2.1 RTP Start Port =6970 INAP Language Extension ID=400 Default Language =English Scripter Audio Dir =/home/jco Default SIGTRAN App =SIGTRAN

Via any modern 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 in real-time via SNMP.
- Statistics off-platform at configured intervals via Graphite (Etsy StatsD) format.
- Call Data Records in file format shortly after call end-time. (Configurable delay).

Scalability & Redundancy

The modular architecture of the *N2 SIP SRP* allows each site installation to be configured to meet the relevant performance and geographic distribution requirements for the specific deployment model, e.g.:

Minimum Deployment
Management + Real-Time Service
Real-Time Service

High-Availability/Redundancy	
Management (Primary) Real-Time Service	**Real-Time Service**
Real-Time Service	**Management (Standby) Real-Time Service**

Feature Packs

The *N-Squared SIP Specialized Resource Platform* contains base and extension features:

Feature Packs	
Base Features • SIP/RTP Sessions with standalone Service Logic • SIP/RTP Sessions with INAP Control • Web-Based Announcement Management • Web-Based Platform Monitoring & Control • English Language Variable Parts	**Language Packs** • Additional Language Packs available on-request. **Additional Features** • Text-to-Speech • Call Recording

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.

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.

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