

Sangoma SS7 Media Gateway Case Study

Tier I carrier goes Open Source and lives to tell the story. GTS Energis 1 year on.

Abstract

While the IP PBX sector has long been accustomed to fierce competition between commercial and open source solutions, the core network carrier infrastructure has long been the exclusive domain of large vendors. VoiceWorks 64 E1 installation of a combination of Asterisk and Sangoma SS7 Media Gateway solution shows that carriers can now benefit from the lower cost and higher flexibility of the Open Source world while maintaining the reliability they expect from traditional vendors.

Customer Needs

In 2007 UKE (Polish Telecom Regulator) informed main polish Carriers that they need to pre-announce call tariffs for premium rate traffic before charging the customer for the call. Such functionality can be delivered using ss7 enabled switches. Due to traditional vendor project delays, one of the main polish Carriers, GTS Energis, was left with 3 weeks deadline to comply with these regulation or face a heavy fine.

An open source solution based on Asterisk was considered as a stop-gap measure before a "proper solution" can be found. GTS Energis contacted VoiceWorks, a specialist Open Source Telephony integrator, specialising in Asterisk, FreeSwitch, sipXecs and OpenSER based deployments. Analysis showed that an Open SS7 based solution will not deliver the required stability, scalability and confidence. A different solution had to be found quickly.

VoiceWorks Solution

The product of choice was a combination of Asterisk and Sangoma ss7 Media Gateway originally developed by Michael Muller (now working for Sangoma). Initial tests showed that the system worked stably and the required custom features can be quickly developed. Most importantly, however, was the level of support that VoiceWorks received from Sangoma. "this gave us the confidence to proceed with the project on such demanding deadlines" - says VoiceWorks CTO, Pawel Pierścionek aka Urtho.

Within a three weeks project time frame VoiceWorks developed custom applications including a monitoring and configuration system allowing GTS Energis to assign number ranges and upload appropriate pre-announcements.

The delivered platform consisted of eight SUN x2200 servers with two Sangoma a104de cards as well as a configuration and monitoring nested on a x2100 server.

Challenge

Rapid deployment of an ss7 enabled solution that can handle up to 64 E1s of Premium Rate traffic while fulfilling the pre-announcement requirements of the Regulator.

Solution

A cluster of eight Media Servers with Asterisk and ss7 Media Gateway with two Sangoma a104e cards each. Plus a custom made management and monitoring system connected to VoiceWorks support infrastructure.

Result

More than one year of stable work and multiple platform functionality extensions such as Emergency Number mapping, Call Screening, CLI modification.

"...a stop gap solution changed into a permanent platform where new features are being added all the time"

Maciej Dobrowolski
Network Department Director

The project was completed on time and required stability was reached within two weeks with small SMG software improvements delivered by Sangoma.

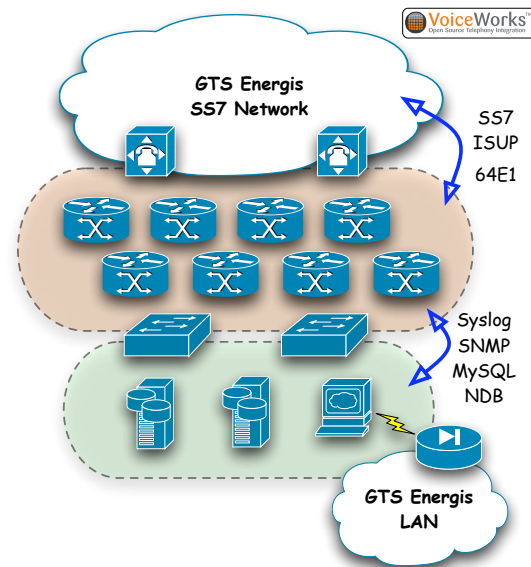
Within a few months of the deployment, the platform gained such trust of the GTS Energis engineers that new features were requested such as emergency number mapping and intelligent number routing. Many small features, that otherwise required expensive upgrades to other GTS Energis infrastructure were increasingly being implemented on the fly by VoiceWorks using the initial platform. The current setup is best explained by the picture below.

Changes, Changes, Changes








Because the platform has been in production for quite some time VoiceWorks is now looking to upgrade to newest ss7 SMG software that will overcome one of the main shortcomings of the initial installation which is the limitation of a separate ss7 signalling link needed for each server as well as higher E1 density per server.

As of January 2009, Sangoma ss7 SMG can be deployed in a cluster scenario where one of the servers has a signalling link that steers the other connected asterisk gateways. Also the use of Sangoma a108de cards would allow up to 16E1s per server lowering the overall cost and size of the deployment. Sangoma ss7 SMG is thus quickly moving up the value chain of ss7 enabled solutions offering more with each new software release.

On the basis of this and other ss7 SMG deployments VoiceWorks has been deeply involved with the platforms development process and has now a extensive lab where new software releases are tested for Sangoma before being offered to other customers. Dave Mandelstamm, Sangoma CEO says that "...without VoiceWorks ongoing involvement ss7 SMG would not be where it is now - a platform that carriers can trust in their mission critical networks".



Legenda:

-  Centrala/MG GTS Energis
-  Cisco 2960G 2 x GE STP Link do każdego serwera
-  Sun X2200M2, CentOS 4.6 Sangoma Media Gateway MySQL Carrier Grade Cluster Node Asterisk 1.2 + Aplikacja Java FastAGI
-  Sun X4150, CentOS 4.6 MySQL Carrier Grade Cluster NDB Storage MySQL Master/Master dla CDRow i konfiguracji
-  Sun X2100M2, CentOS 5.2 Panel zarządzania oparty o LAMP Zabbix monitoring
-  Klaster SMG Aplikacje głosowe
-  Klaster MySQL Monitoring Zarządzanie