
Squire Technologies

SVI_SG

SS7 Signalling Gateway
Date, Audience details

SVI_SG Signalling Gateway

SVI_SG Overview

With the ready availability of reliable, low cost, high bandwidth IP networks the SVI_SG provides a bridge from traditional SS7 based PSTN / GSM networks to IP based networks. The product is supplied as standard with a rich set of operating features :-

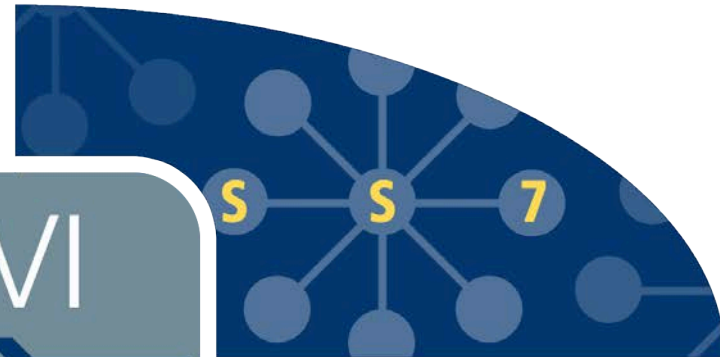
- ▶ The **SVI_SG SS7 Signalling Gateway** provides a seamless method of transporting SS7 signaling over international **IETF** standard **SIGTRAN** with full support for SIGTRAN standards **M2UA, M3UA, M2PA and SUA**
- ▶ SS7 support for the major **ETSI / ANSI / ITUT** standards and 40+ country variants
- ▶ Scales from 2 to 512 Low Speed SS7 Signalling links.
- ▶ 2 to 16 High Speed Links (HSL) supporting Q.703 Annex A and ATM AAL5

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SVI_SG Overview

- ▶ Full support for **SS7 Redundancy** in a worker / standby architecture across dual planes ensuring carrier grade reliability and resilience to network failures



- ▶ Comprehensive Operation Administration & Maintenance Interface (**OA&M**) offering remote management, configuration, log files, network monitoring and statistic

- ▶ Proprietary API development offering simplified access to user defined subsets of higher layer SS7 protocols – MAP/TCAP /ISUP

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Overview



- ▶ Scales to 512 SS7 Signalling links in a dual redundant deployment
- ▶ Scales to 16 High Speed Links (HSL) supporting Q.703 Annex A and ATM AAL5
- ▶ Supports 1+1 Redundancy
- ▶ PCI Form Factor
- ▶ Delivered in 1U PCI 19' Telco Grade Chassis

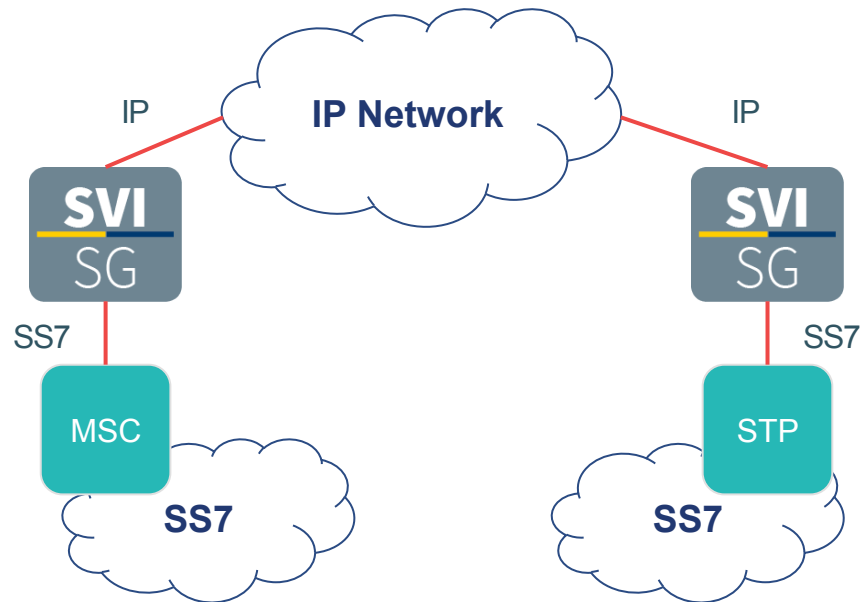
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Overview

- ▶ **Deployment Model**
 - ▶ Backhauling SS7 over IP
 - ▶ Distributed Network
- ▶ **Interfaces and Protocols**
 - ▶ PSTN Layer 4 Protocols
 - ▶ Supported SIGTRAN Protocols
 - ▶ SS7 MTP configurations
 - ▶ Proprietary APIs
- ▶ **Performance Benchmarks**
 - ▶ Benchmarks SS7 <-> SIP
- ▶ **Operational Functionality**
 - ▶ OA&M
 - ▶ Security
- ▶ **Redundancy**
 - ▶ SS7 Redundancy Model

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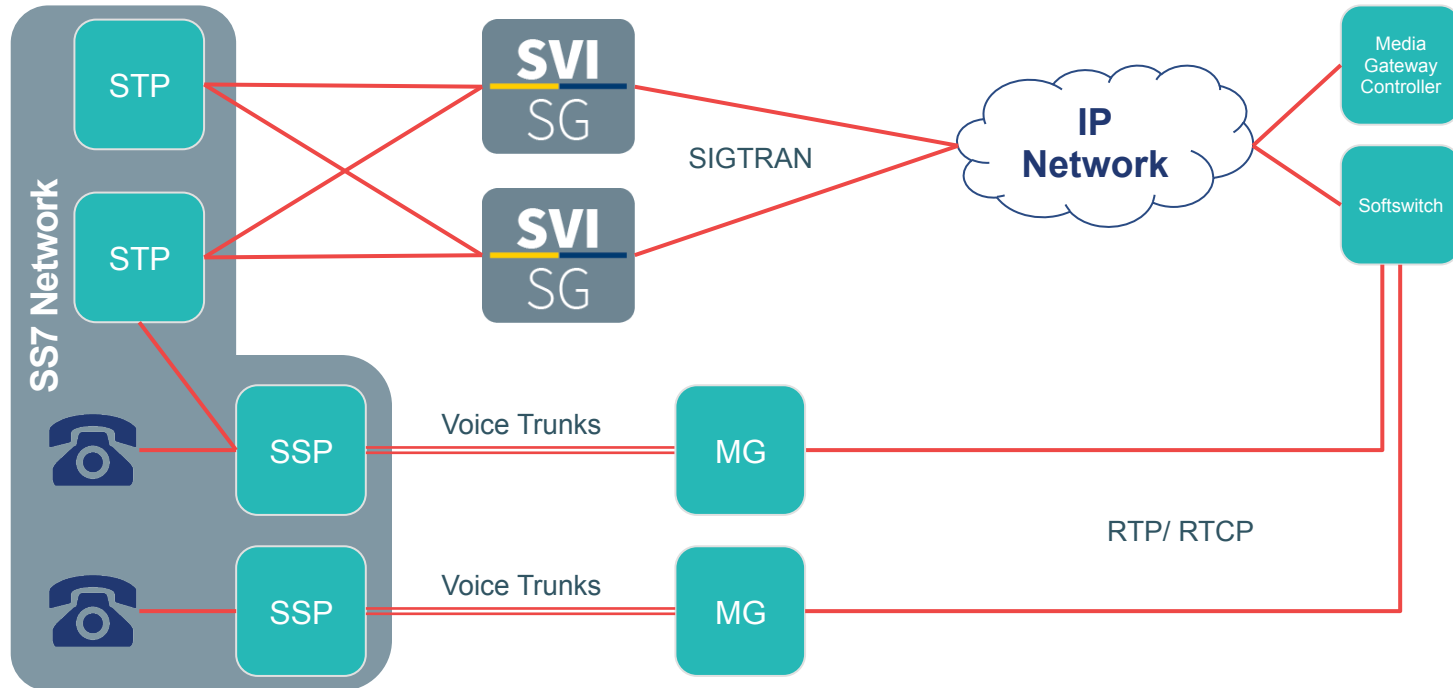
Deployment Scenario Example 1



- ▶ The SVI-SG can be deployed to replace expensive dedicated longhaul SS7 links by backhauling the SS7 signalling over IP

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Deployment Scenario Example 2



- ▶ Deployed in a distributed network architecture delivering the SS7 signalling to a centralised softswitch / media gateway controller.

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PSTN Layer 4 Protocols

▶ ISUP

- ▶ ANSI ISUP - T1.113.1 to T1.113.4
- ▶ GR-246, Telcordia ISUP (T1.113.1 to T1.113.4)
- ▶ ITU ISUP - Q.761-Q.764 Blue & White Book
- ▶ TTC - JT- Q761-Q764
- ▶ ETSI ISUP- EN 300 356-1
- ▶ China YDN 038 China
- ▶ French SSURF (SPIROU)
- ▶ Australia ACIF AG500
- ▶ Belgium C2122 Ed.2
- ▶ Finland SFS 5779
- ▶ Germany ZZN7 3.0.0
- ▶ Hong Kong HKTA 2202
- ▶ Italy SpecificaTecnica N.763
- ▶ Mexico NOM-112SCTI
- ▶ Sweden 8211-A335, 8221 A325
- ▶ UK PNO-ISC/SPEC/007
- ▶ Russia ISUP-R
- ▶ Kazakhstan ISUP-K
- ▶ New Zealand PTC
- ▶ Lithuanian
- ▶ Brazilian 210-110-724
- ▶ Swiss
- ▶ Pakistan
- ▶ Spanish

▶ TUP

- ▶ ITU TUP Q721-Q725
- ▶ SSUTR2 V11-T 1998
- ▶ Chinese GF 001- 9001
- ▶ Brazil

▶ IUP

- ▶ UK PNO-ISC/SPEC/006

▶ SCCP

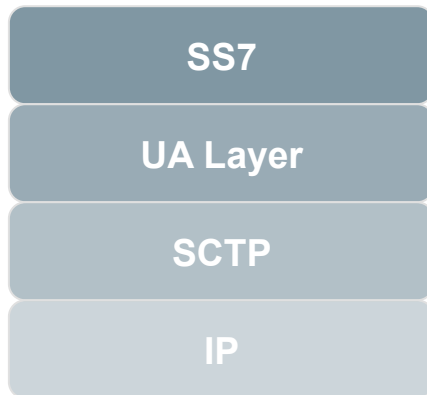
- ▶ ITUT Q711-Q714
- ▶ JT-Q711-G714
- ▶ ETSI ETS 300 589
- ▶ ANSI T1.112

▶ TCAP

- ▶ CNAM ANSI T1.641-1995 (R2004) Calling Name Identification Presentation
- ▶ LNP GR-1936-CORE

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Supported SIGTRAN Protocols

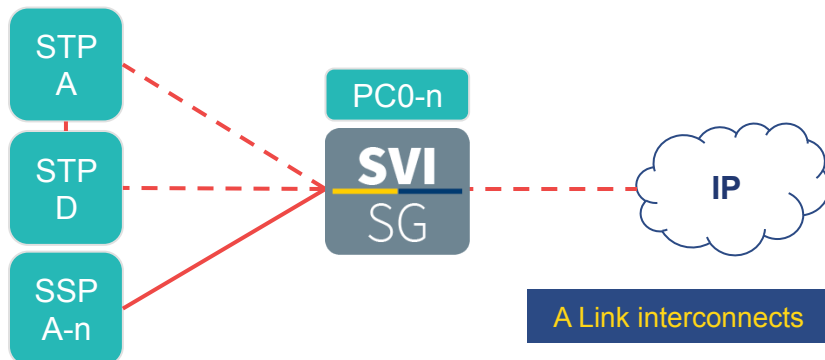
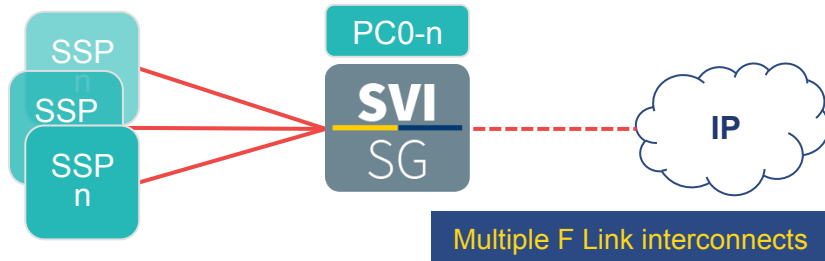
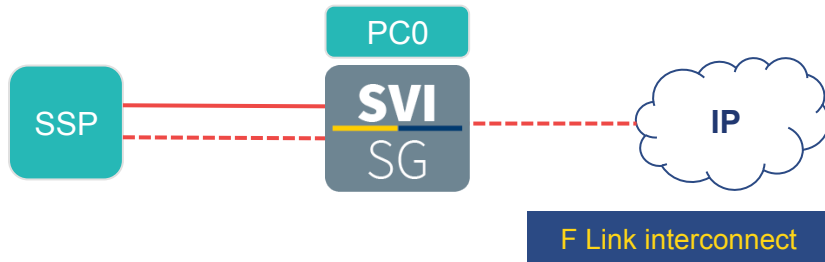


▶ SIGTRAN

- ▶ **SCTP** RFC 2960 Stream Control Transmission Protocol
- ▶ **M2UA** RFC 3331 Signaling System 7 (SS7) Message Transfer Part 2 (MTP2) - User Adaptation Layer (M2UA)
- ▶ **M3UA** RFC 3332 Signaling System 7 (SS7) Message Transfer Part 3 (MTP3) - User Adaptation Layer (M3UA)
- ▶ **SUA** RFC 3868 Signalling Connection Control Part User Adaptation Layer (SUA)
- ▶ **M2PA** RFC 4165 Signalling System 7 (SS7) Message Transfer Part 2 (MTP2) User Peer-to-Peer Adaptation Layer (M2PA)

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SS7 MTP Configurations



MTP L1-L3

- ITU-T Q.701-707
- ANSI T1-111.1-111.8
- Chinese GF 001-9001
- PNO-ISC/ SPEC/005

Dimensioning

- 128 Signalling Links
- 32 Originating Point Codes
- 128 Linksets
- 1024 Destination Point Codes

General

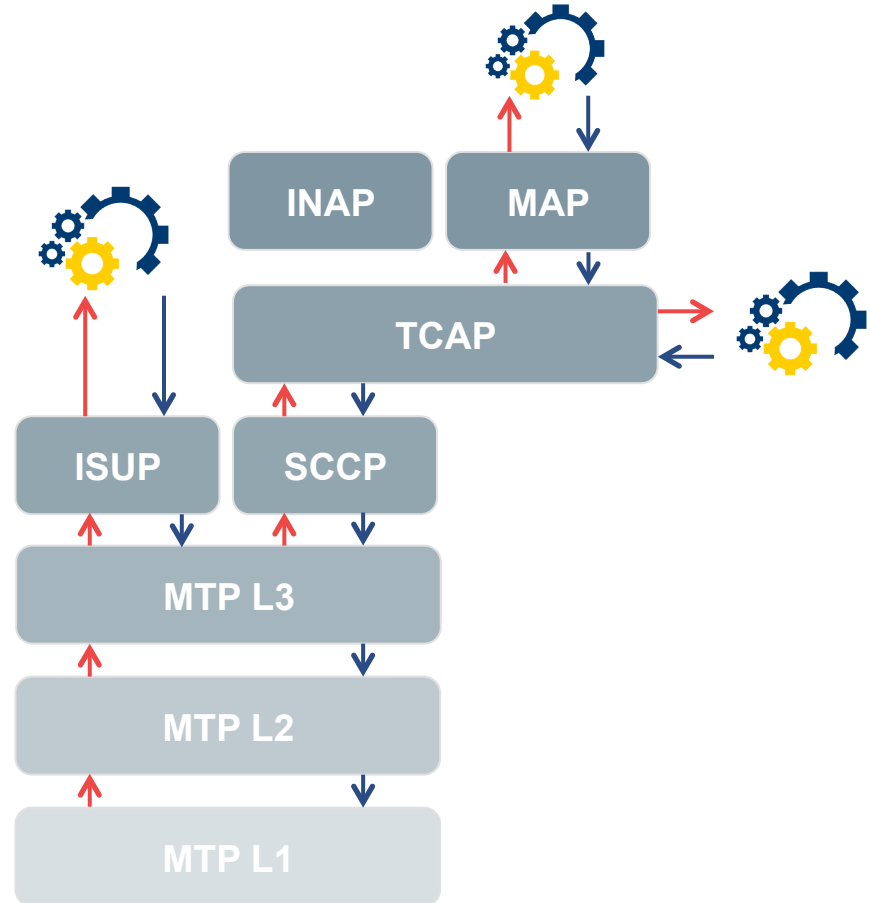
- A,F Link support

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Proprietary APIs

Squire Technologies provide, through their custom product development services, a number of proprietary APIs for client specific requirements :-

- ▶ Simplified access to a subset of SS7 protocols – i.e.
 - ▶ MAP i.e. Specialised HLR lookups, MAP / GSM monitoring for location based services
 - ▶ TCAP i.e. Message Waiting Indicator, CNAM, LNP
 - ▶ ISUP i.e. simplified call control
- ▶ API presented over IP or through C library calls



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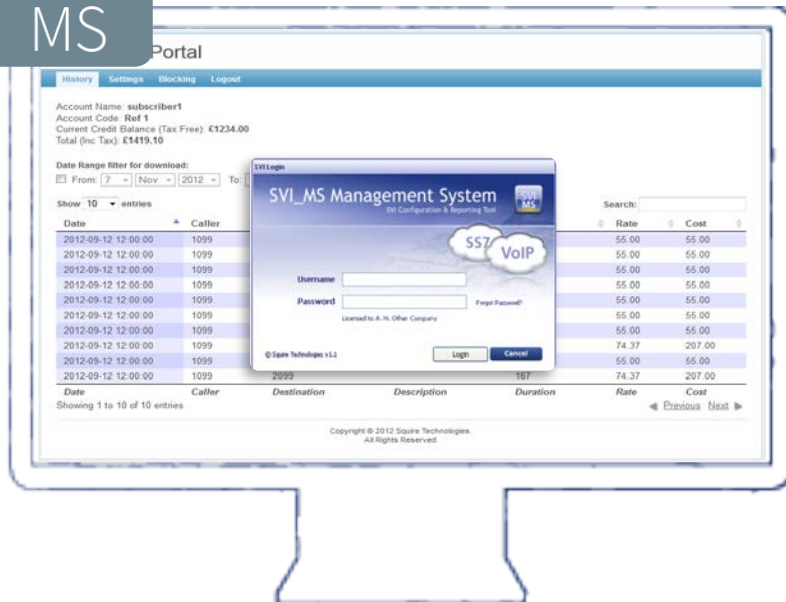
Performance Benchmarks

Test Scenarios		
Message Flow	SIGTRAN M3UA -> SS7 ISUP	SS7 ISUP -> SIGTRAN M3UA
Results		
BHCA	7,200,000	1,440,000
Call attempts/ sec	200	400
% CPU Usage	Avg. 25%	Avg. 80%
Call Completion Rate	99.999%	99.999%
Simultaneous Calls Supported	10,000	10,000

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OA&M – Operation, Administration and Maintenance

SVI
MS



▶ Web based GUI

▶ SVI_MS Management System

- ▶ Secure Remote Access
- ▶ Full Configuration
- ▶ Monitoring
- ▶ Debugging
- ▶ Command Line Interface

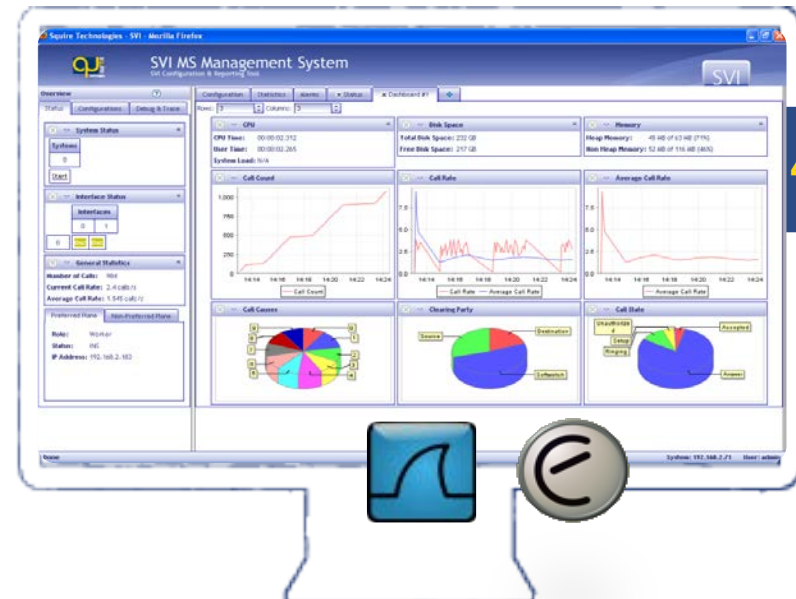
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OA&M – Operation, Administration and Maintenance

SVI MS

- ▶ The globally deployed SVI platform empowers its users with an advanced level of expertise and functionality.
- ▶ The SVI-MS management system features a comprehensive toolkit combining ease of use and the ability to run, analyse multiple systems both safely and securely, providing efficient:-
 - ▶ Configuration - Real time system setup, onboard resource and call routing management
 - ▶ Monitoring - Comprehensive statistical service monitoring and system status tool
 - ▶ Debugging - Rapid tracing, diagnosing and CDR analysis compatible with Wireshark and Ethereal



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OA&M – Operation, Administration and Maintenance

- ▶ The web based GUI brings the user powerful tools to manage system resources, delivering a real-time OA&M, offering:-
 - ▶ Dashboard interface
 - ▶ Wizard library
 - ▶ Customisation – via XML
 - ▶ Secure multi-user features
 - ▶ Extensive help resources
 - ▶ Compatibility with the entire SVI range



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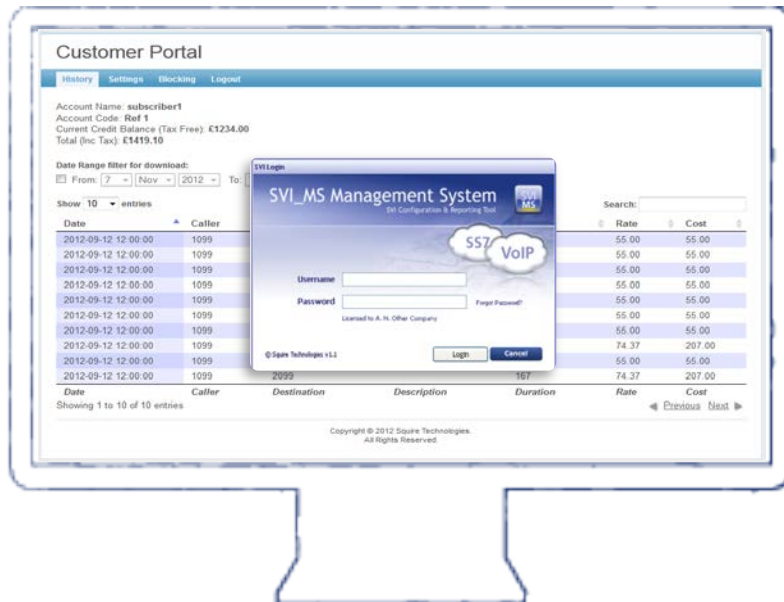
OA&M – Command Line Interface

- ▶ **Configuration**
 - ▶ High speed real time configuration for expert users
 - ▶ Full 'secure' remote access
- ▶ **Administration**
 - ▶ Low Level MMI Interface
 - ▶ Full onboard database inspection and control
 - ▶ Real time resource status display
 - ▶ Controlling system resources
- ▶ **Maintenance**
 - ▶ Configurable logfiles, capturing all aspects of system performance
- ▶ **Performance**
 - ▶ Compatible with Wireshark and Ethereal for full graphical protocol traces
 - ▶ Extensive onboard CDRs and statistics generation
 - ▶ Call minutes, ASR, PDD, ACD, etc
 - ▶ Resource Statistics
 - ▶ Trap Reports
- ▶ **Network Monitoring**
 - ▶ Trap capture
 - ▶ Statistic monitoring, Graphing and Alarming



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Security



The sophisticated SVI platform, brings secure reliability and a proven global pedigree for network operators, incorporating:-

► System

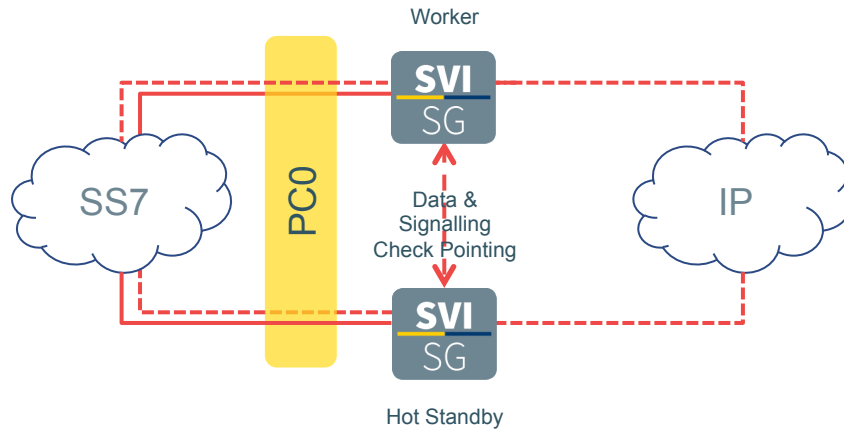
- Integrated Firewall
- Username, password protected
- Secure external protocols used for access (SSH, SCP)
- Only process calls for configured VoIP Destinations
- Reports on unauthorised access
- Client Challenge procedures

► Radius

- Authorisation and Authentication

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Redundancy models



- ▶ 1+1 Dual Plane Worker/ Hot Standby
 - ▶ Database and signalling information checkpointed between planes
 - ▶ Replicated hardware and software
- ▶ Maintain calls in answer on failover
- ▶ Eliminates single points of failure
- ▶ Five Nines uptime (99.999%)
- ▶ Sub 1 second switchover time
- ▶ Single point code spread over dual plan architecture
- ▶ Real time Maintenance upgrades

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Further information

- ▶ Visit www.squire-technologies.com
 - ▶ For further product information on SS7 VoIP products for carriers, operators and service providers, plus case studies and customer testimonials.
- ▶ Email sales@squire-technologies.com
 - ▶ To contact and member of our sales team
- ▶ Call [+44 \(0\)1305 757314](tel:+44(0)1305757314)
 - ▶ To speak with us today

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