



SUNGARD PUBLIC SECTOR

TETRA Integration
Products and
Services (T.I.P.S)



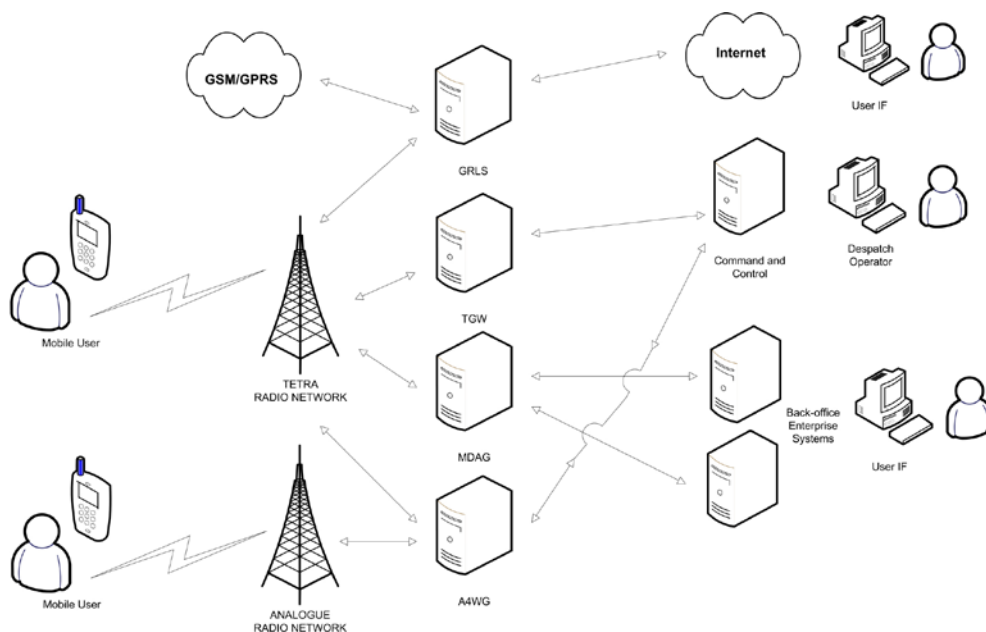
THE QUEEN'S AWARDS
FOR ENTERPRISE:
INNOVATION
2008

TETRA INTEGRATION PRODUCTS AND SERVICES (T.I.P.S)

SunGard Public Sector is a systems integrator, applications developer and product supplier with more than 30 years experience of working within the emergency services sector. SunGard is currently involved in the development and roll-out of:

- Local and National Control Room solutions,
- Digital Radio Network Gateways,
- Communications Managed Services and
- Mobile Data Solutions.

SunGard customers include the majority of UK police forces, 21 fire brigades, all ambulance trusts within England, Wales and Scotland, the Maritime and Coastguard Agency and the Royal Air Force. SunGard has supplied more than 75% of the UK police market with the DS1000/2000 Integrated Communications Control System (ICCS), which has proved its resilience and reliability with analogue and digital communications networks. Motorola, the major supplier of the UK's digital network (Airwave) infrastructure, has recognised this and granted SunGard both 'Dimetra' and 'Application Partner' status. SunGard is at the forefront of the delivery of Radio Terminal Managed Services to UK forces, supporting over 40,000 front line police officers.



SunGard TETRA Integrated Products and Services

PARTNERING BENEFITS FOR TETRA INFRASTRUCTURE PROVIDERS

SunGard T.I.P.S provide many benefits to TETRA Infrastructure Providers

- Off-the-shelf suite of products enabling rapid deployment
- Generic interfaces to many radio protocols
- Cost-effective solutions removing the need for interface development to meet customer requirements
- Reduced cost of Implementation and Training
- Track Record of successful integration and technical consultancy

SUNGARD TETRA GATEWAY (TGW)

The SunGard TETRA Gateway provides a generic interface mechanism to different TETRA radio systems for use by third party systems. Its prime function is the transfer of data received from radio users, and a mechanism to send to radio users, to and from third party systems.

TETRA RADIO SYSTEM INTERFACE (TRSI)

The generic nature of the TRSI means that third party system suppliers can connect to multiple manufacturers radio infrastructures via a common interface, and also be isolated from any technical changes that a radio manufacturer may make to their own interfaces. The key data items transferred to and from the third party system via the TRSI are as follows:

- Status Codes received from radio users
- Emergency Alarm Notification
- Short Data Messages from radio users
- Short Data Messages to radio users
- Talkgroup Affiliation Information for radio users
- Subscriber searches
- Talkgroup membership enquiries
- Alias Updates
- Full support of all TETRA Aliasing Interim Solution commands

The other main key component provided within the TETRA Gateway sub-system is a full Alias Database. This provides the capability to translate the numeric radio user identifiers (ISSI) received from the radio system into a meaningful alias that can be passed onto the connected third party system. The third party system is provided with functionality via the TRSI to query and update various data items within the alias database.

The TETRA Gateway solution is currently supported on the following radio infrastructures:

- Motorola Dimetra R3.8/R4.0/R5.0/R5.1/R5.2/R5.5
- EADS NTS
- Motorola Smartzone (where CADI interface is available)

The TETRA Gateway is currently certified for and in use on the following TETRA networks:

- O2 Airwave Service
- Garda TETRA Pilot

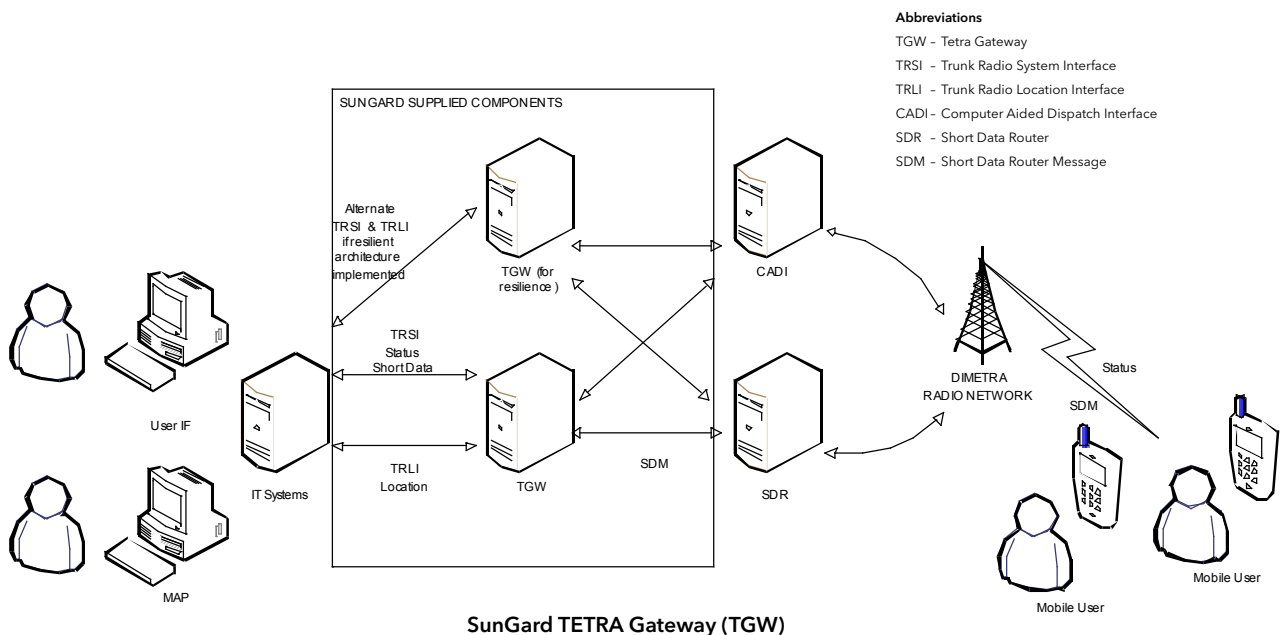
BENEFITS

- Simplifies the interface to a number of different radio infrastructures.
- Purpose built interfaces for dispatching systems (Command and Control).
- Isolates changes to the radio network infrastructure from the organization, thereby simplifying ongoing support and maintenance.
- All certification for physical network connection and license requirements of radio infrastructure manufacturers are covered by SunGard approvals.
(It may be necessary for certain applications to still undergo end to end testing by a network provider and this will need to be ascertained on a case by case basis.)

TECHNICAL DESCRIPTION

A basic SunGard TETRA Gateway installation comprises two PC machines, software and network equipment as follows:

- TETRA Gateway - Machine that runs all software related to Tetra Gateway functionality and interfaces to third party systems and Radio systems.
- Database Server - Machine that hosts Alias Database
- Alias database management application - Windows application that provides data management of Alias database.
- Network Router - router to provide network interconnection with Tetra Radio system.



To provide resilience to the solution additional TETRA Gateway machines can be added. Each TETRA Gateway machine deployed can host a TRSI for connection to third party systems so can thus be used as an alternate or parallel route to exchange information with the Radio System. If a customer has multiple sites then TETRA Gateway/Alias database instances can be deployed at each site, and provided that an appropriate WAN connection is provided full alias data replication is implemented

CASE STUDY

The TETRA Gateway can be deployed in conjunction with SunGard's Integrated Communications Control System or as a standalone component to assist with the integration of digital radio systems into an organisations internal infrastructure and systems. SunGard has deployed TETRA Gateways to achieve this seamless integration in 75% of UK Police Forces. In addition, we are currently deploying the solution into all of the ambulance trusts across the UK. Seamless integration has also been provided to a number of organisations who have integrated back end systems such as Command and Control and Resource Location Management to the digital radio network. Examples of standalone TGW integration with non-ICCS applications include:

1. Lincolnshire Police
2. Norfolk Police

TRUNK RADIO LOCATION INTERFACE (TRLI)

The TRLI is an extension of the TRSI functionality, that provides reporting and control functionality for GPS equipped TETRA terminals. Different radio manufacturers' proprietary reporting formats are converted into a consistent format for passing to connected Command and Control and GIS systems.

The following radio manufacturer protocols are supported:

- Motorola LRRP/MBXML
- Sepura Binary/NMEA Format reports
- Cleartone
- Nokia NMEA/(ETSI LIP due Apr 2006)

The software providing the point of interface for TRLI connection can be installed on every TGW in use by the customer. The architecture for the number of simultaneous TRLI connections that will be required from connected systems will depend on how the customer decides to program reporting destinations in the fleet of TETRA radios.

If a single reporting ISSI is used then all radios will report through a single TGW, thus only one active connection is required. If multiple reporting ISSIs are defined, a decision can be taken to use either single or multiple connections depending on the reporting profiles and TGW loading. This needs careful planning once the full business process for use of GPS is established.

Typically, for GPS trial installations, a single TGW can be defined for all location reporting, and SunGard recommends a standalone machine is deployed to mitigate the risk of any operational impact on standard TETRA Voice and Data traffic.

BENEFITS

- A generic interface for all formats of AVL/APL messages received from radios.
- Different formats of location information available depending on requirement.
- Generates a log file of received reports for offline analysis.
- Generates a trace of all radio commands.

Supports location information from the following radio suppliers:

- Cleartone
- Sepura
- Motorola
- EADS
- ETSI LIP

SUNGARD MOBILE DATA ACCESS GATEWAY (MDAG)

PRODUCT DESCRIPTION

The Mobile Data Access Gateway (MDAG) provides access to information within an organisation to mobile users using secure single sign-on with two factor authentication. Information can be served to end users using WAP browsers and/or standard web browsers. Access to content is controlled by user privileges which are maintained through browser based administration functionality.

Any content that complies with WAP, XML and HTML standards can be served to the end user. The specific content itself is defined by the back-end systems within the organisation supplying the data. End-user screens can be easily defined and modified by the customer.

BENEFITS

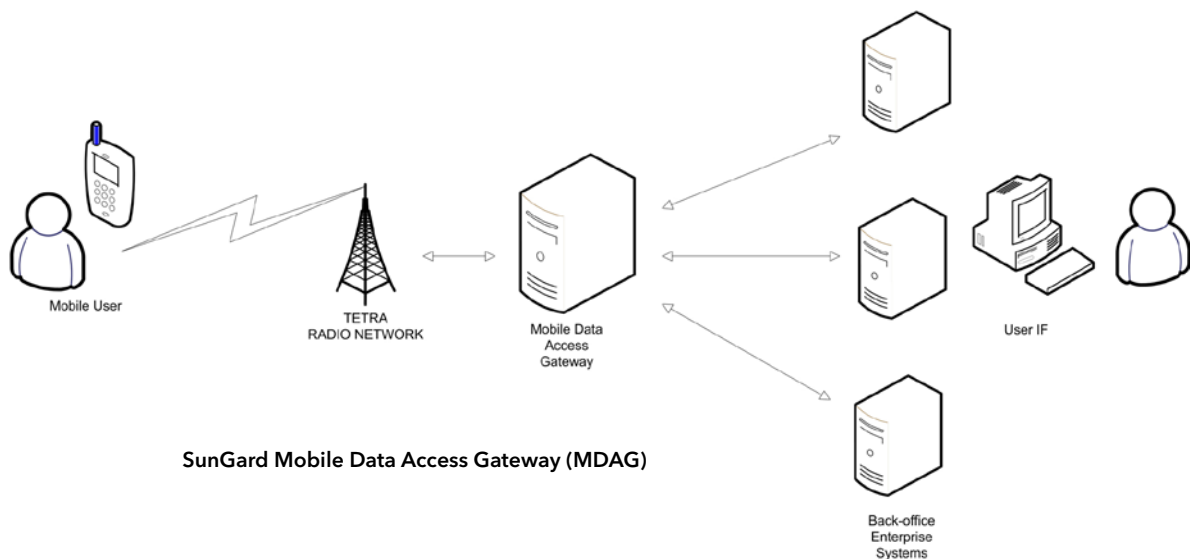
- The gateway resolves issues associated with access by members of an organisation to both legacy and state of the art systems by providing a single interface through which all information can be retrieved.
- Provides browser based access to systems that do not necessarily have browser access currently.
- Provides mobile access to systems.
- Security and access facilities can link into enterprise access databases such as Lightweight Directory Access Protocol (LDAP) and Active Directory.
- The single interface eliminates the need for several different types of training for each of the organisation systems.
- Increase the use of all information by making it easy to access the all the types of information.
- Comprehensive auditing facilities ensure that each and every transaction is recorded with details of when the transaction occurred and by whom.

TECHNICAL DESCRIPTION

The system is built up using industry standard components and interfaces that communicate with information sources, and deliver information to the user on various devices. The information sources or back-end systems can effectively be for example;

- web based systems,
- in house local applications,
- national systems or
- specific delivery systems such as email.

The access of these data sources are controlled and logged using standard X400 products.



INTEGRATION WITH OTHER COMPONENTS

Using a modular approach to the design of the gateway and the use of industry standard XML interfaces, legacy and new systems can be integrated easily. Our team can quickly deliver new functionality and interface requirements.

CASE STUDY - THE PNC/SCRO GATEWAY FOR O2 AIRWAVE

O2 Airwave operates a digital radio network for the UK emergency services. This is now used by the UK's 130,000 police officers for secure voice and data communications. SunGard are a key part of this major communications project having designed and developed the Mobile Data Gateway which enables all officers in England, Wales and Scotland access to the Police National Computer (PNC/SCRO).

This allows them to perform People and Vehicle checks using a variety of mobile devices including radios. This system is accessed by text, WAP and HTML browsers and is currently sized to allow up to 130,000 concurrent users access to these services from mobile devices.

SUNGARD ANALOGUE 4 WIRE GATEWAY

Product description

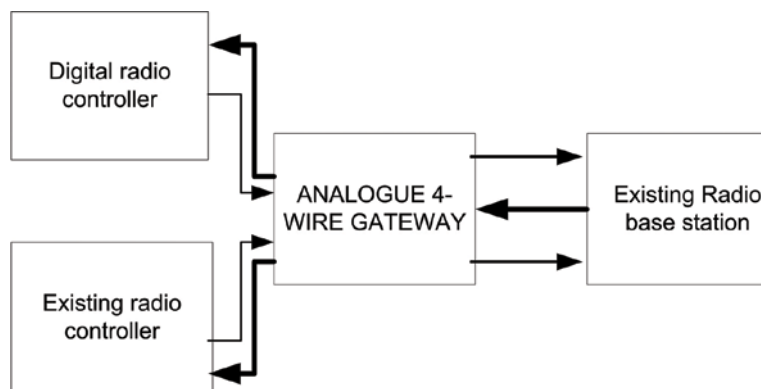
The Analogue 4 Wire Gateway (A4WG) allows an organisation to continue operating whilst using different radio schemes. It provides the ability for two dispatchers to monitor a single analogue radio channel. This allows the management of resources on different radio schemes during the migration of services from, for example, analogue radio to digital trunked radio systems.

BENEFITS

- Resolves issues associated with the management of resources using different radio schemes while not integrated into a single Integrated Control and Communication System.
- Enables dispatchers to link a single radio through to any other radio channel/talkgroup.
- Provides a low cost solution to resource management during times of change.

TECHNICAL DESCRIPTION

The unit is a rack mounted 600 ohm multiple line termination unit with built in logic. The system is designed as an in line radio channel termination unit. It allows two dispatchers to monitor and instruct resources on a single radio channel. It also allows the dispatcher using the dispatcher work station to link the single radio to any other radio channel/talkgroup for central incident management.



SunGard Analogue 4 wire Gateway (A4WG)

INTEGRATION WITH OTHER COMPONENTS

The A4WG unit is capable of linking to the majority of analogue radio schemes with no factory modification.

CASE STUDIES

These units have been used in the recent nationwide implementation of the UK TETRA radio system for the emergency services. They have been deployed in over 25 sites in the UK linking over 200 radio channels during the migration of the Police users to TETRA from their analogue radio schemes.

SUNGARD GPS RESOURCE LOCATION SYSTEM (GRLS)

PRODUCT DESCRIPTION

The GPS Resource Location System is a resource tracking system that monitors the location of all GPS enabled devices. Each device is displayed on a mapping system, identifying the location of the device along with other information such as speed of travel. The system is a secure web based resource tracking system capable of monitoring and administering groups of devices from the web utilising secure sign on for the administrators for web access.

TECHNICAL DESCRIPTION

The system is developed using industry standard technology and is high availability. The solution is totally scalable and can be delivered with or without redundancy features, and for any number of devices and administrators.

INTEGRATION WITH OTHER COMPONENTS

The system has been designed and integrated with the Motorola TETRA radio system which provides radio services to the UK emergency services. Equally the system is capable of integrating to other GPS enabled GSM/GPRS devices.

CASE STUDIES

This system is currently deployed in the UK for the monitoring of GPS enabled TETRA radio devices. These are used by the emergency services (Police and Ambulance), but is also available to many other qualifying organisations. It is capable of monitoring up to 10,000 devices in its current configuration, but is scalable and capable of managing significantly more devices when required.

ABOUT SUNGARD PUBLIC SECTOR

SunGard Public Sector UK serves a wide range of customers - public safety and justice agencies, local and central government and third sector organisations. Solutions include public safety and justice applications as well as managed services and management consulting. In the UK more than 50 million citizens - 86% of the population - are served by agencies that rely on SunGard Public Sector solutions.

www.sungardps.co.uk

ABOUT SUNGARD

With annual revenue of more than \$4 billion, SunGard is a global leader in software and processing solutions for financial services, higher education and the public sector. SunGard also helps information-dependent enterprises of all types to ensure the continuity of their business. SunGard serves more than 25,000 customers in more than 50 countries, including the world's 50 largest financial services companies.

www.sungard.com



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