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The Connection of Telecommunications Installations and Services

The Swiss telecommunications market was opened for competition at the same time as most of the European Union countries on 1 January 1998. The liberalisation of the market creates an environment for the entry of new network operators and service providers.

Swisscom Network to the Provider of Telecommunications Services Network Joining Service

The Swisscom Network to the Provider of Telecommunications Services Network Joining Service provides a 2048 kbit/s

Swisscom has been preparing for the opportunities generated by the expected rapid expansion of the existing retail market and by the newly created wholesale market serving the needs of newly established operators and service providers. New entrants offering fixed network, mobile, and other innovative new retail services will require a range of wholesale services from Swisscom to allow connection of their facilities to Swisscom's switched telecommunications network designed to enable their customers to call and be called by existing telephone users. Swisscom has established a new unit called Carrier Services specifically to address the needs of this new market, and has developed a range of new services which are offered to all organisations meeting the necessary legislative and regulatory conditions.

Each of the services in the portfolio offered by Swisscom Carrier Services benefits from the backing of Swisscom's customer commitment and by the high quality and reliability of Swisscom's telecommunications network.

The services we supply within the *Standard offer for the connection of telecommunications installations and services* framework are:

- Swisscom Network to Provider of Telecommunications Services Network Joining Service
- Swisscom PSTN Interconnection Terminating Service
- Swisscom PSTN to Selected Carrier (Provider of Telecommunications Services) Service
- Swisscom PSTN Emergency Services Access Service
- Swisscom PSTN National Directory Enquiry Access Service
- Swisscom PSTN 0800 Access Service
- Swisscom PSTN Transit Service

List of Access Points

Resilient AP Pair	Access Point Name	Zip Code and Location	Access Areas
1	Basel-Grosspeter	4052 Basel	061
	Wallstrasse	4051 Basel	061
2	Bellinzona	6500 Bellinzona	091
	Lugano-Cinque Vie	6932 Breganzona	091
3	Bern-Mattenhof	3008 Bern	031, 034
	Bern-Ittigen	3063 Ittigen	031, 034
4	Biel-Schuess	2502 Biel	032 Biel Area
	Solothurn	4500 Solothurn	032 Biel Area
5	Chur-Gäuggeli	7000 Chur	081
	Chur-Schellenburg	7000 Chur	081
6	Bulle	1630 Bulle	026
	Fribourg-Centre	1700 Fribourg	026
7	Genève-Montbrillant	1202 Genève	022
	Genève-Monthoux	1201 Genève	022
8	Lausanne-Préville	1003 Lausanne	021, 024
	Lausanne-Savoie	1003 Lausanne	021, 024
9	Luzern-Floraweg	6002 Luzern	041
	Luzern-Weinbergli	6002 Luzern	041
10	Chaux-de-Fonds-Centre	2300 La Chaux-de-Fonds	032 Neuchâtel Area
	Neuchâtel-Clos-Brochet	2000 Neuchâtel	032 Neuchâtel Area
11	Aarau	5000 Aarau	062
	Olten	4600 Olten	062
12	Niederurnen	8867 Niederurnen	055
	Rapperswil SG	8640 Rapperswil SG	055
13	St. Gallen-Lachen	9000 St. Gallen	071
	Wil SG	9500 Wil SG	071
14	Brig	3900 Brig	027
	Martigny	1920 Martigny	027
15	Interlaken-Hauptamt	3800 Interlaken	033
	Thun-Hauptamt	3600 Thun	033
16	Schaffhausen Feuerthalen	8245 Feuerthalen	052
	Winterthur	8400 Winterthur	052
17	Zürich-Binz	8003 Zürich	01
	Zürich-Herdern	8040 Zürich	01
18	Baden	5400 Baden	056
	Wohlen AG	5610 Wohlen AG	056

transmission service between a Point of Presence Circuit Terminating Unit and an Access Point Circuit Terminating Unit (Figure 1).

The Swisscom Network to the Provider of Telecommunications Services Network Joining Service comprises one or more Swisscom 2048 kbit/s Network Joining Links each at a standard speed of 2048 kilobits per second between a Swisscom Access Point and a corresponding Provider of Telecommunications Services Point Of Presence.

Swisscom PSTN Interconnection Terminating Service

The Swisscom PSTN Interconnection Terminating Service provides conveyance of Provider of Telecommunications Services Customer Universal Service Calls from a Swisscom Access Point to Swisscom Customer Connections via the Swisscom STN (Figure 2).

Swisscom PSTN to Selected Carrier (Provider of Telecommunications Services) Service

The Swisscom PSTN to Selected Carrier (Provider of Telecommunications Services) Service enables Universal Service Calls from Swisscom Customer Connections destined for other Providers of Telecommunications Services, Swisscom or third party Customers to be routed via the Swisscom STN to a Swisscom Access Point for onward conveyance by the Provider of Telecommunications Services when the caller prefixes the call with a Carrier Selection Code issued to the Provider of Telecommunications Services by Bakom (Figure 3).

Swisscom PSTN Emergency Services Access Service

The Swisscom PSTN Emergency Services Access Service provides conveyance of Provider of Telecommunications Services Customer Universal Service Calls from a Swisscom Access Point to the Emergency Service indicated by the dialled number (Figure 4).

Swisscom PSTN National Directory Enquiry Access Service

The PSTN National Directory Enquiry Access Service provides conveyance of Universal Calls from a Swisscom Access Point to a Swisscom Directory Enquiry Operator at a Swisscom National Directory Enquiry Centre for provision Swisscom National Directory Database infor-

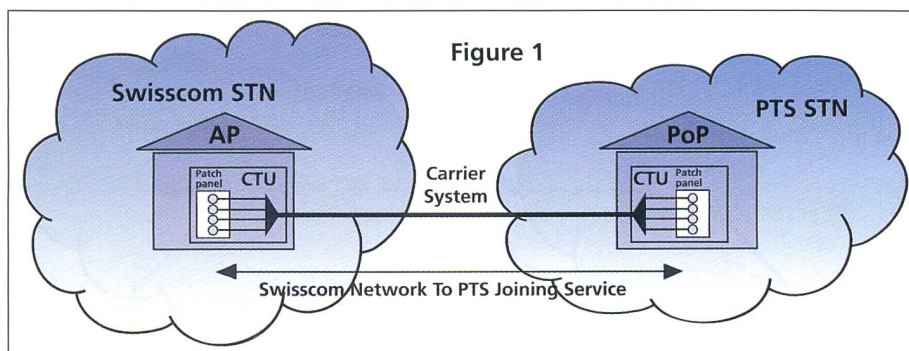


Figure 1. The service allows connection of the Swisscom and Provider of Telecommunications Services networks for the exchange of signalling messages and to allow calls to be passed between Swisscom and the Provider of Telecommunications Services (Fig. 1). This service or an equivalent service supplied by the Provider of Telecommunications Services is necessary to support the other services in the Swisscom portfolio.

AP = Access Point = A Swisscom location which is offered for connection to exactly one PTS Point of Presence in the same access area, which forms half of a Resilient Access Point Pair and which is part of the Swisscom switched telecommunications network.

PoP = Point of Presence = A PTS location

which is offered for connection to exactly one Swisscom Access Point in the same access area, which is part of the PTS switched telecommunications network and is within the geographic area of Switzerland in which the PTS is licensed by Bakom to construct and operate a telecommunications network consisting of lines and radio links. Circuit Terminating Unit = The equipment rack, located at the Access Point or Point of Presence, which contains the equipment (both dedicated and common), and physical interfaces, necessary to terminate the 2048 kbit/s Network Joining Links. PTS = Provider of Telecommunications Services.

STN = Switched Telecommunications Network.

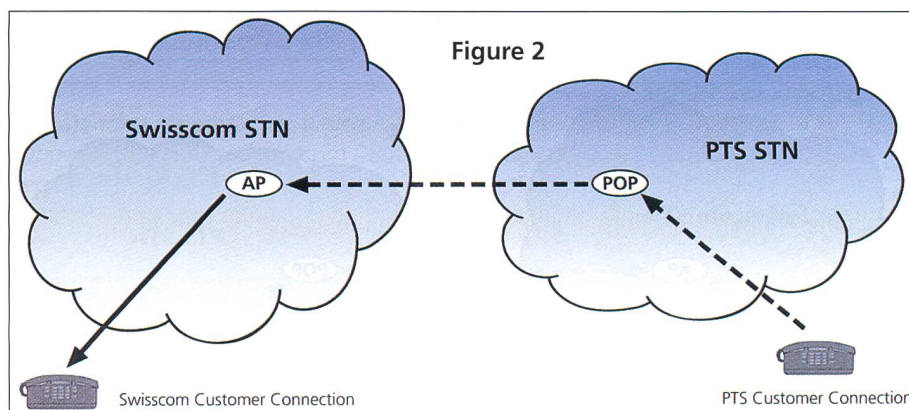


Figure 2. Many new entrants will want to deliver calls to existing Swisscom telephone connections. This service allows new entrants to make universal service calls available to Swisscom at an Access Point for delivery to the destination Swisscom telephone connection, enabling the Provider of Telecommunications Services to offer "any to any" services to its own customers.

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PoP = Point of Presence = A PTS location which is offered for connection to exactly one Swisscom Access Point in the same access area, which is part of the PTS switched telecommunications network and is within the geographic area of Switzerland in which the PTS is licensed by BAKOM to construct and operate a telecommunications network consisting of lines and radio links. PTS = Provider of Telecommunications Services.

STN = Switched Telecommunications Network.

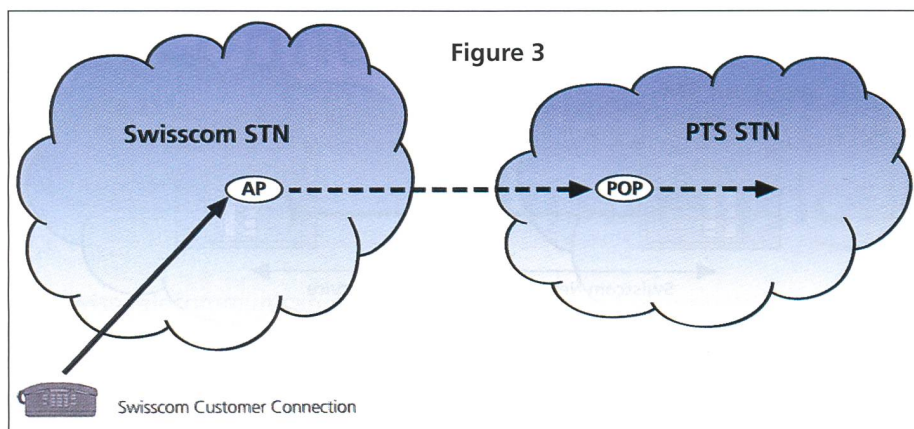


Figure 3. Users of telecommunications services in Switzerland now have the possibility to choose a carrier for their universal service calls. Their selection is indicated by use of a short code which is used before the full telephone number is dialled. This service allows users of Swisscom fixed telephones to select a Provider of Telecommunications Services to carry a call, allowing reach from Swisscom's current customers.

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PTS = Provider of Telecommunications Services.

STN = Switched Telecommunications Network.

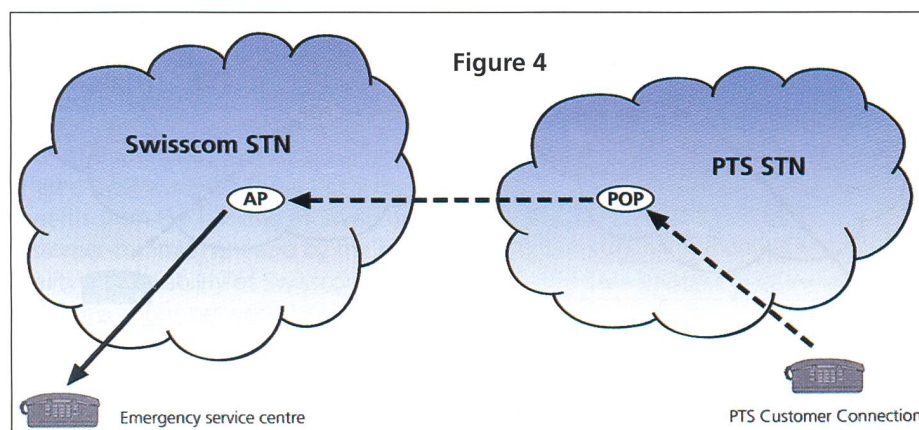


Figure 4. Where a new entrant has installed direct connections to its customers there is a need to correctly and reliably handle universal service calls made to the emergency services. Calls need to be routed to the appropriate emergency centre depending on the service required and the caller's geographic area. This service allows Provider of Telecommunications Services to offer its customers the facility to call the emergency services using Swisscom's existing infrastructure to make the connection to the selected emergency centre.

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licensed by Bakom to construct and operate a telecommunications network consisting of lines and radio links. The short code number agreed by Bakom for access to the Swisscom PSTN National Directory Enquiry Access Service is "111".

Swisscom PSTN 0800 Access Service

The Swisscom PSTN 0800 Access Service provides conveyance of Universal Service Calls from a Swisscom Access Point to Swisscom 0800 Numbers where the Swisscom 0800 Service Customer has agreed to accept Universal Service Calls from the PTS Customers (Figure 6).

Swisscom PSTN Transit Access Service

The PSTN Transit Access Service provides conveyance of Universal Service Calls from a Swisscom Access Point through the Swisscom STN destined for other Providers of Telecommunications Services within Switzerland (Figure 7).

Interfaces and signalling protocols

Interface for PTSN/ISDN connections, based on 2048kbit/s transmission rate with ITU Signalling system No 7:

Standards:

- Physical/electrical interface:
ITU-T G.703/G.704/G.706
- SS7 Message Transfer Part (MTP):
ETSI ETS 300 008-1
- SS7 ISDN User Part (ISUP):
ETSI ETS 300 356-1-19

The exact extent of supported services and the specific handling of the standards mentioned above are to be defined in the agreement between Swisscom and the Provider of Telecommunications Services.

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licensed by Bakom to construct and operate a telecommunications network consisting of lines and radio links. PTS = Provider of Telecommunications Services.

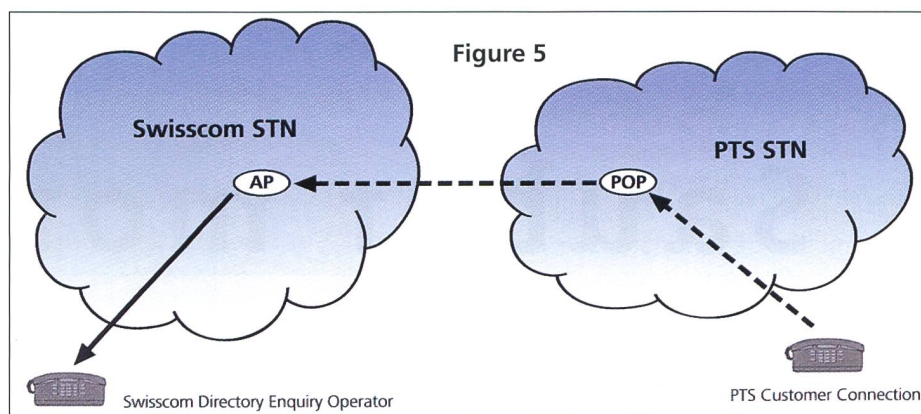
STN = Switched Telecommunications Network.

Figure 5. This service allows a Provider of Telecommunications Services to offer a directory enquiry service to its customers. Universal service calls are routed to a Swisscom directory enquiry operator where the caller will be greeted in the appropriate language.

AP = Access Point = A Swisscom location

which is offered for connection to exactly one PTS Point of Presence in the same access area, which forms half of a Resilient Access Point Pair and which is part of the Swisscom switched telecommunications network.

PoP = Point of Presence = A PTS location which is offered for connection to exactly one Swisscom Access Point in the same access area, which is part of the PTS switched telecommunications network and is within the geographic area of Switzerland in which the PTS is licensed by Bakom to construct and operate a telecommunications network consisting of lines and radio links.



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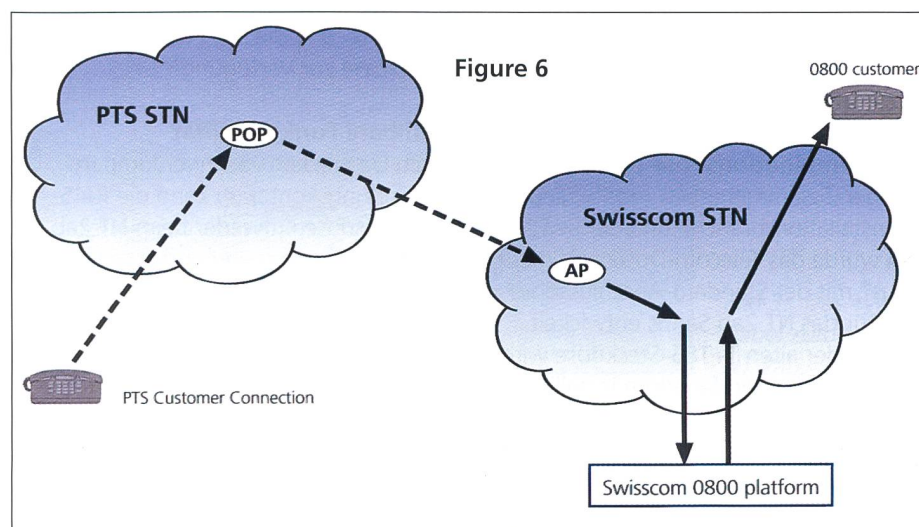


Figure 6. The service allows a Provider of Telecommunications Services to pass universal service calls to Swisscom which

are intended for a number which is supported within the Swisscom 0800 service.

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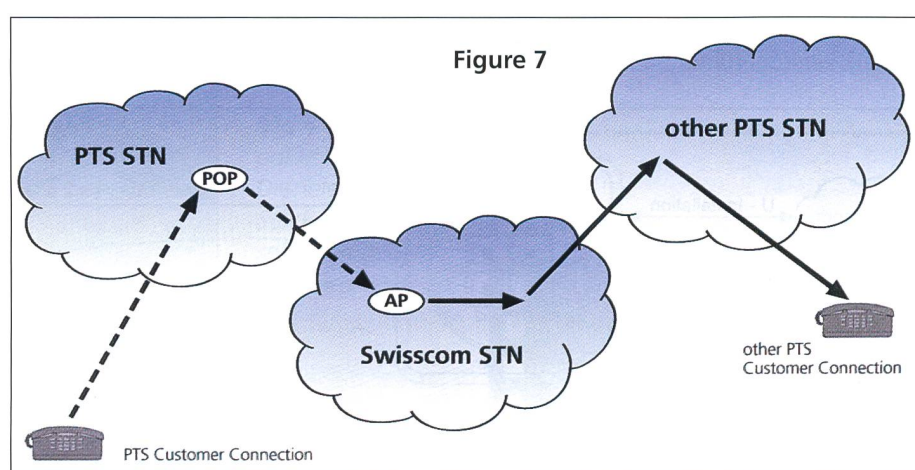
PoP = Point of Presence = A PTS location which is offered for connection to exactly one Swisscom Access Point in the same access area, which is part of the PTS switched telecommunications network and is within the geographic area of Switzerland in which the PTS is licensed by Bakom to construct and operate a telecommunications network consisting of lines and radio links.

PTS = Provider of Telecommunications Services.

STN = Switched Telecommunications Network.

Figure 7. Provider of Telecommunications Services will, in many cases, wish to be able to handle calls destined for telephones or other services provided by operators other than themselves or Swisscom. This service allows universal service calls destined for third parties to be handed to Swisscom at an Access Point for delivery by Swisscom to other operators and service providers in Switzerland. The service allows the Provider of Telecommunications Services to provide a comprehensive service to its customers without the continuous investment needed to connect to every other operator or service provider.

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PoP = Point of Presence = A PTS location which is offered for connection to exactly one Swisscom Access Point in the same access area, which is part of the PTS switched telecommunications network and is within the geographic area of Switzerland in which the PTS is

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PTS = Provider of Telecommunications Services.
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