# TPS®/PCA™

GENERAL INFORMATION

OVERVIEW

TPS®/PCA (Protocol Conversion Application) is a UNIX® or Windows® based software solution that provides connectivity and protocol conversion between SNA (Systems Network Architecture) devices and a TCP/IP network. TPS®/PCA has been used mainly by the banking industry to manage multiple legacy SNA-based devices, such as Automated Teller Machines (ATMs) from internal TCP/IP-based networks.

TPS®/PCA is used in conjunction with TPS®/SNA and TPS®/SNA Primary, a highly reliable and diverse communications package, to provide a bridge between SNA and TCP/IP networks.

Third party applications may also utilize TPS®/PCA's simple sockets interface to access data from multiple SNA secondary and primary PU (Physical Unit) and LU (Logical Unit) connections, including Cross-Domain connections. These applications will connect to TPS®/PCA using sockets, and exchange data with the SNA devices using a simple header format. TPS®/PCA can also be used to manage dependent LU sessions with CICS host applications utilizing LU type 0 or LU type 2 protocols.

TPS®/PCA can handle a virtually unlimited number of devices and is limited only by other hardware / software limitations.

TOPOGRAPHY

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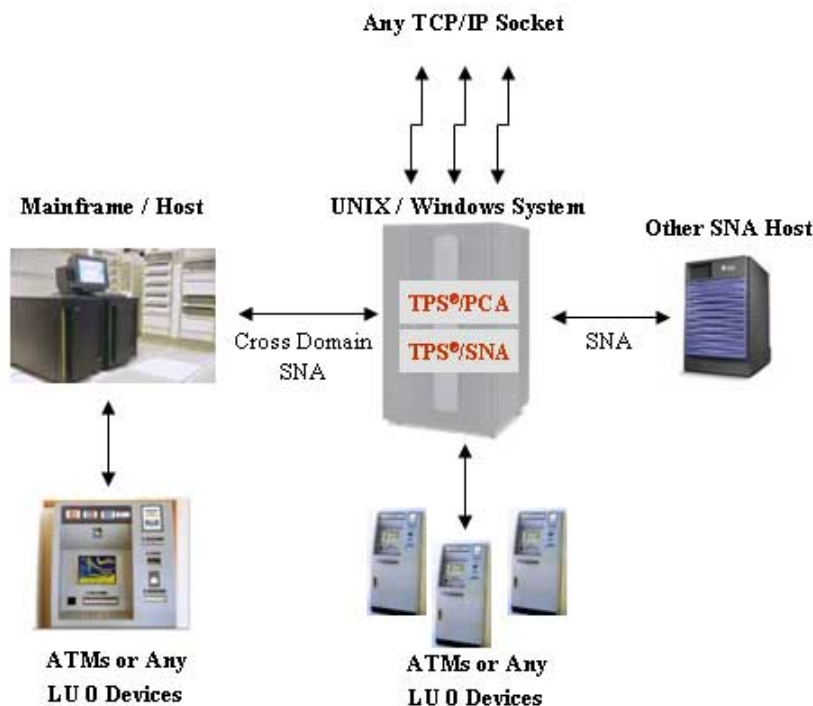
HIGHLIGHTS

- Bridges SNA and TCP/IP networks through UNIX® or Windows® server

- Handles virtually unlimited numbers of devices — up to hardware and system software limitations

- Robust SNA Support – through prerequisite [TPS®/SNA](#) and [TPS®/SNA Primary](#) software products:

  - Supports SDLC, Ethernet®, Token Ring, and Frame Relay data links

  - UNIX® server acts as "virtual mainframe" by providing upstream PUs 4 / 5 support to downstream SNA devices

  - Supports Cross Domain environments

  - Interfaces with many other SNA applications

  - Advanced diagnostic tools for problem determination

- Client and/or server functionality on the TCP/IP side

- Compliant with BSD sockets specification

- Straightforward specification for the exchange of data on the TCP/IP side. Third party applications can interface easily

- Can multiplex traffic from many SNA devices through either single or multiple socket connections

- From [TPS® Systems](#) – with a 25+ year tradition of excellence in providing networking software and support for large global organizations

PRODUCT POSITIONING

TPS®/PCA is an ideal solution for banking networks with:

- A SNA-based ATM network using LU 0 traffic.

- An ongoing requirement for SNA traffic support.

- An existing or planned TCP/IP WAN or LAN.

TPS®/PCA can also be an excellent approach for any organization needing to interconnect SNA networks with TCP/IP networks.

ARCHITECTURE

The SNA Layer

PCA operates using TPS®/SNA and TPS®/SNA Primary as the lower level interface to a SNA network. Physical connection to the network is achieved through a Network Interface Card (NIC), communication adapter, or a communications co-processor card with a device driver. Multiple Physical Unit (PU) connections, or links, to multiple SNA devices and hosts may be established over a single interface. Once a PU session is established, either side, depending on the relationship between the PUs, may request Logical Unit (LU) sessions. An LU session is the mechanism for data communications to proceed over a link. Applications such as Remote Job Entry (RJE), 3270, and TPS/PCA all use LU sessions to carry out their duties.
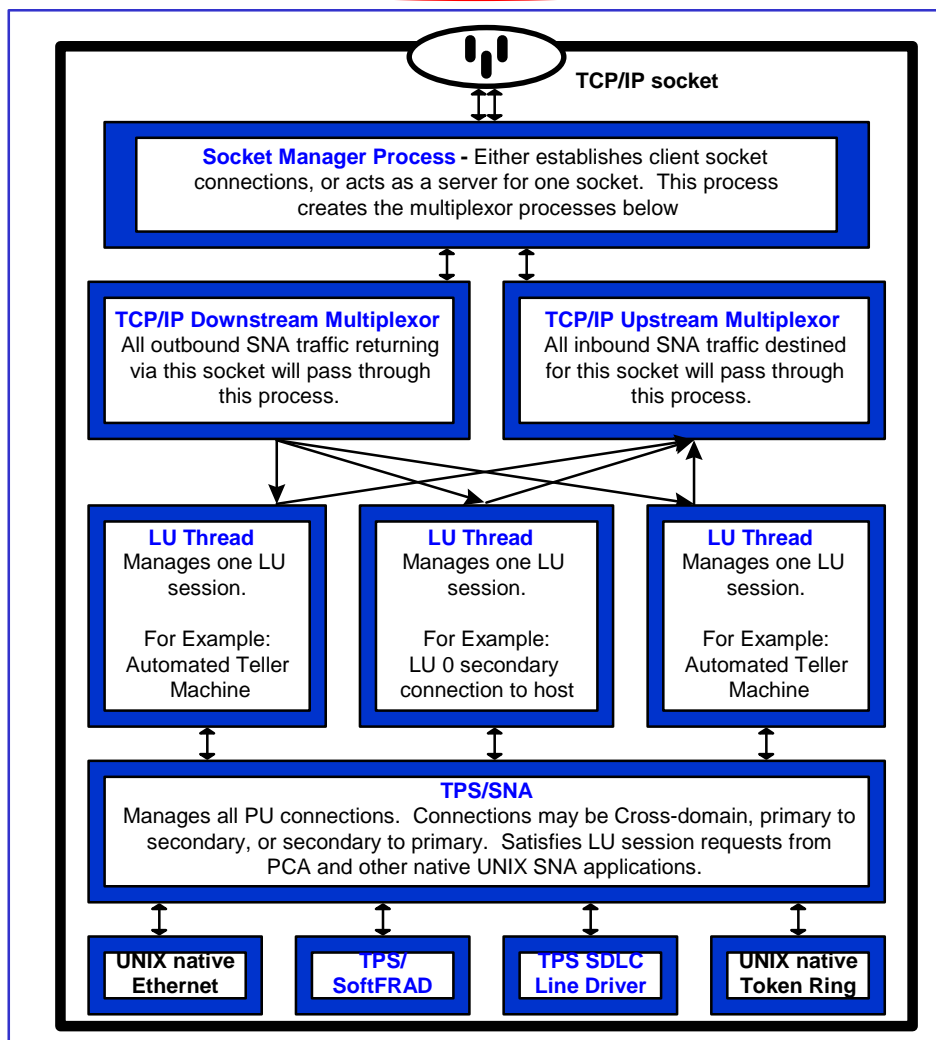
The PCA Layer

LU processes

Each SNA secondary or primary device utilizing PCA's conversion functions establish one LU session. Up to 255 LUs may be configured over a single PU connection. For each device, one thread is created by PCA to request or accept an LU session from TPS®/SNA. If this hypothetical device is a SNA host, the LU session is *accepted*. If the device is a SNA secondary device, such as an ATM, the LU session is *requested* by PCA. These PCA threads are responsible for all traffic exchanged between the remote device and the local machine until there is a reason or request by either side to terminate the session.

Multiplexor processes

Any number of PCA's LU threads may route their traffic over a single TCP/IP socket. The PCA administrator is responsible for configuring the destination socket for each device. Each LU thread delivers its traffic to the appropriate TCP/IP upstream multiplexor, and also receives traffic destined for the SNA device from the TCP/IP downstream multiplexor. A pair of multiplexor processes will exist for each socket utilized. Tuning PCA for the highest achievable performance is thus a matter of distributing the workload across sockets.

TPS®/PCA™ -- General Information

```
                              TCP/IP socket

┌──────────────────────────────────────────────────────────┐
│  Socket Manager Process - Either establishes client socket │
│  connections, or acts as a server for one socket.  This    │
│  process creates the multiplexor processes below           │
└──────────────────────────────────────────────────────────┘

┌─────────────────────────┐   ┌─────────────────────────┐
│ TCP/IP Downstream        │   │ TCP/IP Upstream          │
│ Multiplexor              │   │ Multiplexor              │
│ All outbound SNA traffic │   │ All inbound SNA traffic  │
│ returning via this socket│   │ destined for this socket │
│ will pass through this   │   │ will pass through this   │
│ process.                 │   │ process.                 │
└─────────────────────────┘   └─────────────────────────┘

┌──────────────┐  ┌──────────────┐  ┌──────────────┐
│ LU Thread    │  │ LU Thread    │  │ LU Thread    │
│ Manages one  │  │ Manages one  │  │ Manages one  │
│ LU session.  │  │ LU session.  │  │ LU session.  │
│              │  │              │  │              │
│ For Example: │  │ For Example: │  │ For Example: │
│ Automated    │  │ LU 0         │  │ Automated    │
│ Teller       │  │ secondary    │  │ Teller       │
│ Machine      │  │ connection   │  │ Machine      │
│              │  │ to host      │  │              │
└──────────────┘  └──────────────┘  └──────────────┘

┌──────────────────────────────────────────────────────────┐
│  TPS/SNA                                                   │
│  Manages all PU connections.  Connections may be Cross-    │
│  domain, primary to secondary, or secondary to primary.    │
│  Satisfies LU session requests from PCA and other native   │
│  UNIX SNA applications.                                     │
└──────────────────────────────────────────────────────────┘

┌────────────┐ ┌────────────┐ ┌────────────┐ ┌────────────┐
│UNIX native │ │TPS/        │ │TPS SDLC    │ │UNIX native │
│Ethernet    │ │SoftFRAD    │ │Line Driver │ │Token Ring  │
└────────────┘ └────────────┘ └────────────┘ └────────────┘
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The TCP/IP Layer

The UNIX TCP/IP subsystem follows the client-server model for allowing two machines on a network to establish a socket connection. PCA spawns one TCP/IP socket manager process for each socket to be utilized. The manager may be invoked in either client or server mode. Thus, a third party application needing to interface with PCA may do so as a client or server. Once the socket connection is established, the manager process waits until there is an error (one of the multiplexor processes abnormally terminates), and then attempts to re-establish the connection in its prior mode.

Third party TCP/IP applications utilizing PCA will distinguish among devices by a 6-byte Device ID presented in the header packet preceding any data transmitted over the socket.

PRODUCT POSITIONING

PCA is an ideal solution for banking networks with:

- A SNA-based ATM network using LU type 0 traffic.
- An ongoing requirement for SNA traffic support.

- An existing or planned TCP/IP WAN or LAN.

PCA can also be an excellent approach for any organization needing to interconnect SNA networks with TCP/IP networks.

FEATURES

Flexible Multiplexing

PCA can handle a virtually unlimited number of devices and is constrained only by other hardware/software limitations. Since tasks are divided among multiple threads, throughput bottlenecks can be remedied by balancing the multiplexing of downstream SNA devices across multiple TCP/IP sockets.

SNA Support – using TPS®/SNA *and* TPS®/SNA Primary

PCA supports multiple links to SNA hosts while acting as a downstream SNA device.   No mainframe host TCP/IP support is required for LU type 0 communications through PCA. While the SNA concepts for connecting to primary versus secondary devices are quite different, the PCA setup for these two connections is uniform. The only unique attribute for TCP/IP traffic is a 6-byte user-defined I.D.

SNA-Supported SNA Data Links:
- Synchronous Data Link Control (SDLC)
- Ethernet
- Token Ring
- Frame Relay (requires TPS®/SoftFRAD™ and supported co-processor card)

SNA-Supported PU Protocols:
- PU type 2.0 support (connection to host PU types 4/5)
- PU type 2.1 support (connection to host PU types 4/5)
- PU types 4/5 upstream host support.

PCA-Supported LU Protocols:

- Dependent LU type 0

SNA-Supported SNA APIs

- CPI-C for both C and COBOL languages
- APPC for C language
- Dependent LU API for LU types 0, 2 and 3.

Client or Server Versatility

Third party TCP/IP applications interfacing with PCA can establish a socket connection at a predetermined address. PCA can then act either as a client initiating the application connection, or as a server waiting for application connections at the predetermined address

OPERATING ENVIRONMENT

Operating System:

- IBM® AIX® *for* IBM® pSeries (32-bit)
- Linux® *for* IBM® pSeries (64-bit), Intel®/AMD®(32-bit), Intel® Itanium (64-bit)
- Digital® UNIX (32-bit)
- Sun Solaris® *for* Sparc (32-bit)
- Windows NT/2000/XP *for* Intel®/AMD®

Other Requirements:

- TPS®/SNA and TPS®/SNA Primary
- For WAN circuits, a WAN communications adapter

CUSTOMER CONSIDERATIONS

Evaluation Licenses

Evaluation copies of TPS® software products are available for a pre-specified timeframe under the terms and conditions of the single-page TPS® Evaluation Agreement.

Return & Refunds

TPS® Systems guarantees that if a product does not meet your requirements, it may be returned within 60 days for a full refund.

Warranty Period

All TPS® software products have a 90 day warranty period from ship date. After this period, customers should register for annual maintenance to receive continued technical support and no-charge program updates.

Maintenance

TPS®/PCA post-warranty maintenance is available through the TPS® Annual Maintenance Agreement. Maintenance coverage includes telephone technical support and availability of new versions/releases at no additional charge. Annual maintenance charges are 20% of the license fee per system up to a maximum per customer enterprise. Please contact your TPS® Sales Representative for further details.

Customer Responsibilities

Customer responsibilities include:

- Establishing the SNA and TCP/IP networks that PCA will interface with.
- Performing product installation, setup and configuration.
- Maintaining configuration files.
- Performing routine trouble-shooting procedures before contacting TPS® support.
- Providing diagnostic or trouble-shooting information as directed by TPS® support.

ORDERING INFORMATION

TPS® software products are available under the Agreement for TPS® Licensed Programs. To order TPS®/PCA, or for further information, please contact the TPS® Sales Department at (210) 496-1984 or e-mail *sales@tpssys.com.*