ATM Application Programming Interface (API)

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Overview

- What is an API?
- What is a SAP?
- API Group activities
What is an API?

- API = Set of interfaces to access the functionality of lower level services
- Typically implemented as a function library
- Example: WSAAccept() = Accept incoming connection (in Winsock2)
- Existing APIs: Sockets, XTI (X/Open transport interface), Winsock, Netbios
Service Access Point (SAP)

- SAP is used to distinguish clients of a layer
- Many clients can use a service
- Each client must have its own SAP
- On an outgoing call, destination SAP specifies the ATM address of the remote device + target software in the device
SAP Address

- SAP is expressed as a vector.
  \{ATM Address, ATM selector, BLLI_id2, BLLI_id3, BHLI_id\}
- BLLI_id2 identifies layer 2 protocol
  - BLLI = Broadband low layer information
- BLLI_id3 identifies layer 3 protocol
- BHLI_id identifies application layer protocol
- Each SAP vector element (SVE) consists of a tag, length, and value field
- A tag can be "Present", "Absent", or "Any"
- Several rules for coding and interpretation of SVEs.
Native Services Reference Model

- Applications
  - Native ATM API
  - Native ATM Library
  - Existing Transport APIs
    - Other API Libraries (Sockets)
    - Traditional Transport and Network Protocols (TCP/IP)
    - Other Services (LANE)

Connection and Data Distribution
- Native ATM SAP
- UNI Services
  - Data Transfer
  - SVC
  - PVC
  - Local Management
  - Device Drivers
- ATM Adapter Card

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API Group Activities

- Specification of Reference API
- Semantic description includes sequence of events
  - Semantic = meaning = independent of any programming language
  - Provides proper abstraction of relevant ATM procedures and parameters
- Help other organizations to include native ATM applications ⇒ Winsock
State Diagram: Example

A0
- ATM_associate_endpoint
  - ATM_prepare_outgoing_call
    - ATM_connect_outgoing_call
      - ATM_P2P_call_active
        - ATM_accept_incoming_call
          - ATM_P2P_call_active
            - ATM_call_release
              - ATM_abort_connection
              - ATM_P2MP_call_active
        - ATM_reject_incoming_call
  - ATM_prepare_incoming_call
    - ATM_wait_on_incoming_call
      - ATM_arrival_of_incoming_call
      - ATM_P2MP_call_active
    - ATM_P2P_call_active
      - ATM_P2P_call_active
  - ATM_accept_incoming_call
    - ATM_P2P_call_active
    - ATM_P2MP_call_active

A1
- ATM_prepare_outgoing_call

A2
- ATM_connect_outgoing_call

A3
- ATM_P2P_call_active

A4
- ATM_wait_on_incoming_call

A5
- ATM_arrival_of_incoming_call

A6
- ATM_reject_incoming_call

A7
- ATM_P2MP_call_active

A8
- ATM_call_release

A9

A10

A11
ATM API allows applications to exploit ATM. Services include data transfer, VC setup/release, traffic management, and network management. Currently specifying a SAP.
References: ATM API


- "Mapping of the ATM Forum SAA/API Semantic Description to the Winsock2 API," ATM Forum/96-00191R1, April 1996.