ATM Name Service (ANS)

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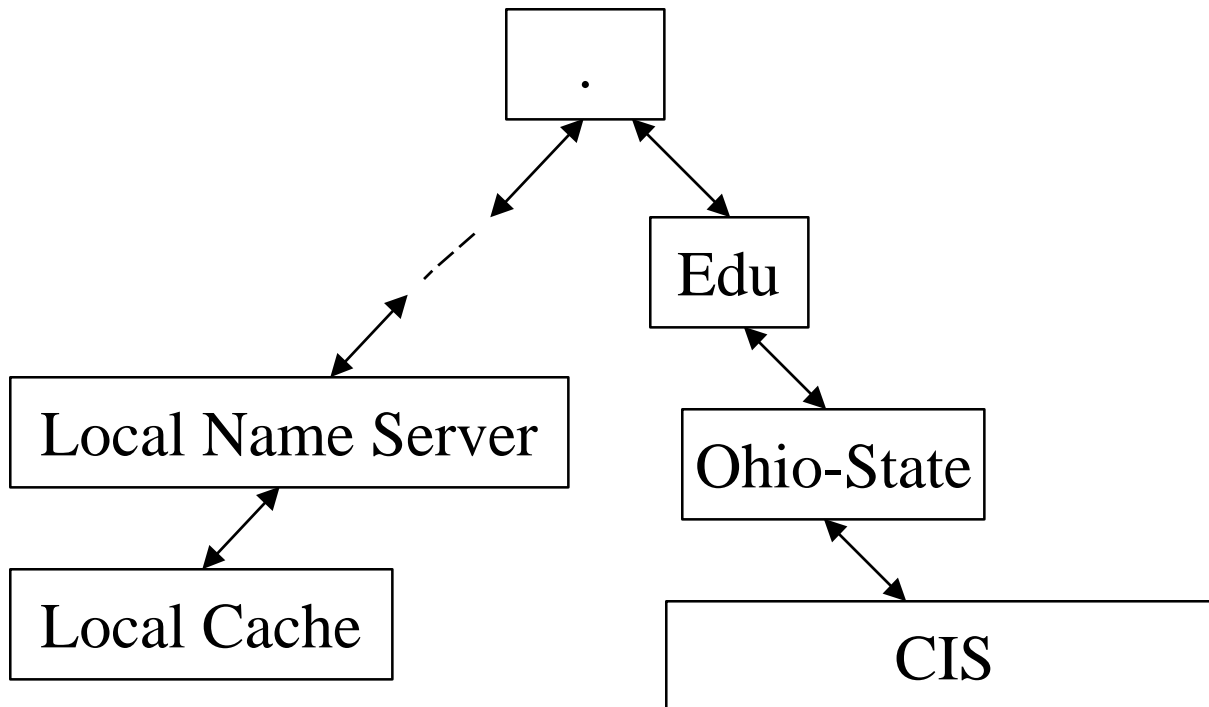http://www.cse.wustl.edu/~jain/

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Overview

q   What is a name system?

q   ATM Name system

q   ATM address to name translation

ATM Name System

q   Directory services

q   Similar to Domain Name System (DNS)

q   Provides numerical address and other info for a name

q   DNS Name = Liberia.cis.ohio-state.edu

q   IP Address = 164.107.134.5

q   Domain name to address translation and vice versa

q   DNS specified in RFC 1034 and 1035

Name Resolution

What is the IP address of snoopy.cis.ohio-state.edu?

```
                    ┌─────┐
                    │  .  │
                    └─────┘
                    ↗      ↘
               ⋰            ┌───────┐
          ↙                 │  Edu  │
  ┌──────────────────┐      └───────┘
  │ Local Name Server│            ↕
  └──────────────────┘      ┌────────────┐
            ↕               │ Ohio-State │
  ┌──────────────┐          └────────────┘
  │ Local Cache  │                ↕
  └──────────────┘          ┌──────────────────┐
                            │       CIS        │
                            └──────────────────┘
```

ANS Server

q Similar to DNS Server

q Provides domain names to ATM Address translation

q ATM Address types:

  q AESA = ATM End System Address = NSAP format ATM address

  q E164 = E.164 format

AESA Translation

q Domain name = Selector.End system identifier.Domain specific part.Data country code.Authority and format id.ATM address type.ATM Address.International

q Digits of High Order-Domain Specific Part (HO-DSP) field are reversed and separated by "."

q ATM Address: 3924-6F00-0E7C-9C03-1200-0100-0100-0012-3456-7800

q Domain Name:
00.000012345678.1.0.0.0.1.0.0.0.2.1.3.0.C.9.C.7.E.0.0.0.24 6F.39.AESA.ATMA.INT

39	Data Country Code (2B)	High-Order DSP (10B)	End System ID (6B)	Selector (1B)

E.164 Translation

q National number.country code.E164.ATMA.INT

q Digits of national number are reversed and separated by .

q Phone Number: +358.400.1234567

q ATM Address: 3584001234567

q Domain name: 7.6.7.4.3.2.1.0.0.4.358.E164.ATMA.INT

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ANS: Other Details

q   User interfaces may allow ATM address to be written in natural order with or without dots.

q   ANS runs directly on ATM.
    DNS runs on TCP/IP or UDP/IP.

q   ANS server to ATM clients use VC.

q   ANS servers use TCP (for reliability) to communicate among themselves in Phase 1.

q   Clients get ANS server address via ILMI or from a well known address.

q   The well-known address is:
   02C5 0079 0000 0000 0000 0000 0000.00A03E000002.00

Why DNS?

- q DNS is widely implemented, well understood, works.
- q Domain registration procedures in most countries
- q Future DNS extensions on dynamic updates and security can be reused.
- q Allows dual hosts to choose between IP and native ATM.

ANS: Phase 2 Plans

q Security extensions

q Dynamic update capability

q Prompt notification of zone changes

q Incremental zone transfer capability

Summary
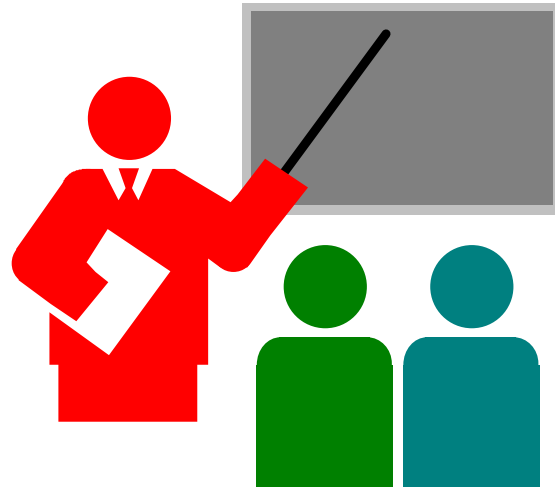
q ATM Name system is modeled after domain name system

q ATM addresses can be translated to domain names

References: Directory Services

q "ATM Name System (ANS) Specification," Version 1.0, ATM Forum/95-1532R3, June 1996.

q RFC 1034, "Domain names: concepts and facilities," November 1987, 55 pp.

q RFC 1035, "Domain names: implementation and specification," November 1987, 55 pp.