Authentication Authorisation and Accounting ARCHitecture Research Group

chairs:
C. de Laat
J. Vollbrecht

Content of this talk has contributions from many persons including:

B. de Bruijn, C&K Dobbins, S. Farrell, G. Gross,
L. Gommans, D. Spence, E. Verharen, T. Verschuren,
T. Zseby
Applications

- Network Access
- Bandwidth Broker
- Authorization of resources living in many administrative domains
- Budget system
- Library system
- Computer based education system
- E-Commerce
- Micro-payments
- Car Rental
- Daily life
Multi Kingdom Problem

Physics-UU to IPP-FZJ => 7 kingdoms

- Netherlands
  - Physics dept
  - Campus net
  - SURFnet

- Europe
  - TEN 155

- Germany
  - WINS/DFN
  - Juelich, Campus
  - Plasma Physics dept

USA line

3 ms

2.5 ms

17 ms
The need for AAA

End user

Kingdom N

Kingdom N+1

Remote service

AAA

BB

management

$$$
Example application: bandwidth brokerage at Enterprise/Service Provider boundary
Roaming “Pull” Authorization Model

Example applications: Mobile IP, PPP dial-in to NAS
Example application: Internet printing, where file and print servers are in different admin domains
AAA Server building block

Rule example: Auth_A = (B>9) .or. C .and. D

Types of communication:
1: “The” AAA protocol
2: interface (API) to app specific module (addressing!)
3: interface (API or connection) to repositories (e.g. LDAP)
Types of communication:
5: Towards service (f.e. COPS, CLI, SNMPv3)
Types of communication:
4: Legacy protocols (Radius, Diameter, …)
Generic AAA server
Rule based engine

Application specific Module

Policy
Events

GW
AAA Server with Accounting as Separate Service

1. Generic AAA server
   Rule based engine

2. Application Specific Module
   1. Policy
   2. Events
   3. Acct Data

3. Accounting Module
   4. Service
   5. Metering
AAA Server with Accounting as Part of the Service

1. Generic AAA server
   Rule based engine

2. Application specific Module

3. Policy
   Events

4. Service

5. Accounting/Metering

6. Acct Data
Example: Interaction with Authorization

User

Visited ISP

Bill

ARs
(optional online charging)

AAA Server

Service Equipment

Collectors

Meters

AAA Server

Home ISP

Charging & Billing

Charging Policies

Service parameters including Accounting Policy

Accounting Records (ARs)

1. Configuration

2. ARs

3. AAA Server

4. AAA Server

5. AAA Server

6. AAA Server

7. Accounting Records (ARs)

8. ARs
Generic AAA Agent Model

AAA server

AAA server

AAA server
Specific goals of the RG are:

- develop generic AAA model by specifically including Authentication and Accounting
- develop auditability framework specification that allows the AAA system functions to be checked in a multi-organization environment
- develop a model that supports management of a "mesh" of interconnected AAA Servers
- define distributed policy framework, coordinate with policy framework WG and others
- develop an accounting model that allows authorization to define the type of accounting processing required for each session
Specific goals of the RG are:

- implement a simulation model that allows experimentation with the proposed architectural models (also work on an emulation)
- describe interdomain issues using generic model
- work with AAA WG to align short term AAA protocol requirements with long term requirements as much as possible
- complete the work in Q4 - 2000 (ambitious)
• **Research Group Name:** AAAARCH - RG

• **Chair(s)**
  - John Vollbrecht  --  jrv@merit.edu
  - Cees de Laat  --  delaat@phys.uu.nl

• **Web page**
  - www.irtf.org
  - www.phys.uu.nl/~wwwfi/aaaarch

• **Mailing list(s)**
  - aaaarch@fokus.gmd.de
  - For subscription to the mailing list, send e-mail to majordomo@fokus.gmd.de with content of message
    subscribe aaaarch
    end
  - will be archived, retrieval with frames and in plain ascii:
    » http://www.fokus.gmd.de/glone/research/aaaarch/
    » http://www.fokus.gmd.de/glone/research/mail-archive/aaaarch-current
    » ftp://ftp.fokus.gmd.de/pub/glone/mail-archive/aaaarch-current