
SNMP and ASN1

simple network management
protocol

Abstract syntax notation 1

SNMP

- Network management matters
 - keeping track of problems
 - noting throughput etc.
 - to find where the bottlenecks are
- Networks are complex
 - so automated support is necessary
- Management station
 - interface for human intervention
 - interacts with **agents**
 - agent software on routing platforms, hubs etc allowing reconfiguration without closedown

Management Information Base

- MIB
 - The information which is available to the Management station
- SNMP is used for the collection of data, and for altering agent status
 - Get
 - retrieve the values of objects at agents
 - Set
 - set the values of objects
 - Notify
 - notify the management of significant events

Management Information Structure

- SMI
 - structure of management information
- required because the different components may be using differing representations
- Restricted set of types (see acetate 19.4)
- Based on ASN1.....

ASN1

- Why abstract syntax at all
 - same problem as in SNMP
 - different machines use differing formats for information
 - ┆ big-endian and little-endian integers
 - ┆ character sets
 - ┆ floating point numbers
 - ┆ etc.

ASN1

- is a primitive data declaration language
- allows arbitrarily complex data types to be defined
- SNMP data is described in ASN1
- ASN1 can also be used in other application level protocols.

Abstract and transfer syntaxes (see acetate 19.2)

Abstract syntax

- what appears to be transferred
- unaffected by the machine architecture

Transfer Syntax

- what is actually transferred
- tagged data
- Basic types
 - integer
 - bit string
 - octet string
 - null
 - object identifier
- plus structured types can be produced
- Indefinitely extensible