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PROBLEMS WITH SMIv1 / v2

• SMIv2 RELIED ON 1988 VERSION OF ASN.1

• TOOLS FOR SMIv2 RELATIVELY COMPLEX

• CERTAIN DATA TYPES WERE MISSING IN SMIv2
  64 bit integers, …

• LIMITED FACILITIES TO REUSE DEFINITIONS

• SMIv2 DID NOT ALLOW FOR EXTENSIONS

• NEW, POSSIBLY INCOMPATIBLE VARIANTS APPEARED
  SPPI, …
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TO RESOLVE THESE PROBLEMS

THE IRTF NMRG DEFINED:

SMI next generation (ng)

THE CHALLENGE:
CREATE A COMMON DATA DEFINITION LANGUAGE,
INDEPENDENT OF SPECIFIC PROTOCOLS
DATA VERSUS INFORMATION MODEL

INFORMATION MODEL:

Conceptual model / abstract model

"formal" / UML, ...

DATA MODEL:

MIBs

PIBs

SMIv2

SPPI

LDAP SCHEMA

CORBA IDL
DATA MODEL & "TRANSFER" PROTOCOL

DATA MODEL:
- MIBs
- PIBs

"TRANSFER" PROTOCOL:
- SNMP - BER
- COPS - BER
- LDAPv3
- CORBA IDL
ROLE OF SMIng

DATA MODEL:

MIBs / PIBs

SNMP - BER

COPS - BER

LDAP SCHEMA

CORBA IDL

INFORMATION MODEL

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SNMP - BER

COPS - BER
IRTF-NMRG PROPOSAL FORWARDED TO IETF

SMIng WORKING GROUP FORMED

2000
SMIv3 OBJECTIVES

ALLOW ARBITRARILY NESTED DATA STRUCTURES
EASE REUSABILITY OF COMPLEX STRUCTURED TYPES

DETAILED LIST OF OBJECTIVES: RFC 3216

HOWEVER:

PROTOCOL INDEPENDENCE NO LONGER DESIRABLE
LANGUAGE EXTENSIBILITY NO LONGER DESIRABLE

FINALLY SMIv3 IS A RELATIVE SMALL UPDATE OF SMIv2