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# **XNMP**

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## **XML Network Management Protocol and Interface**

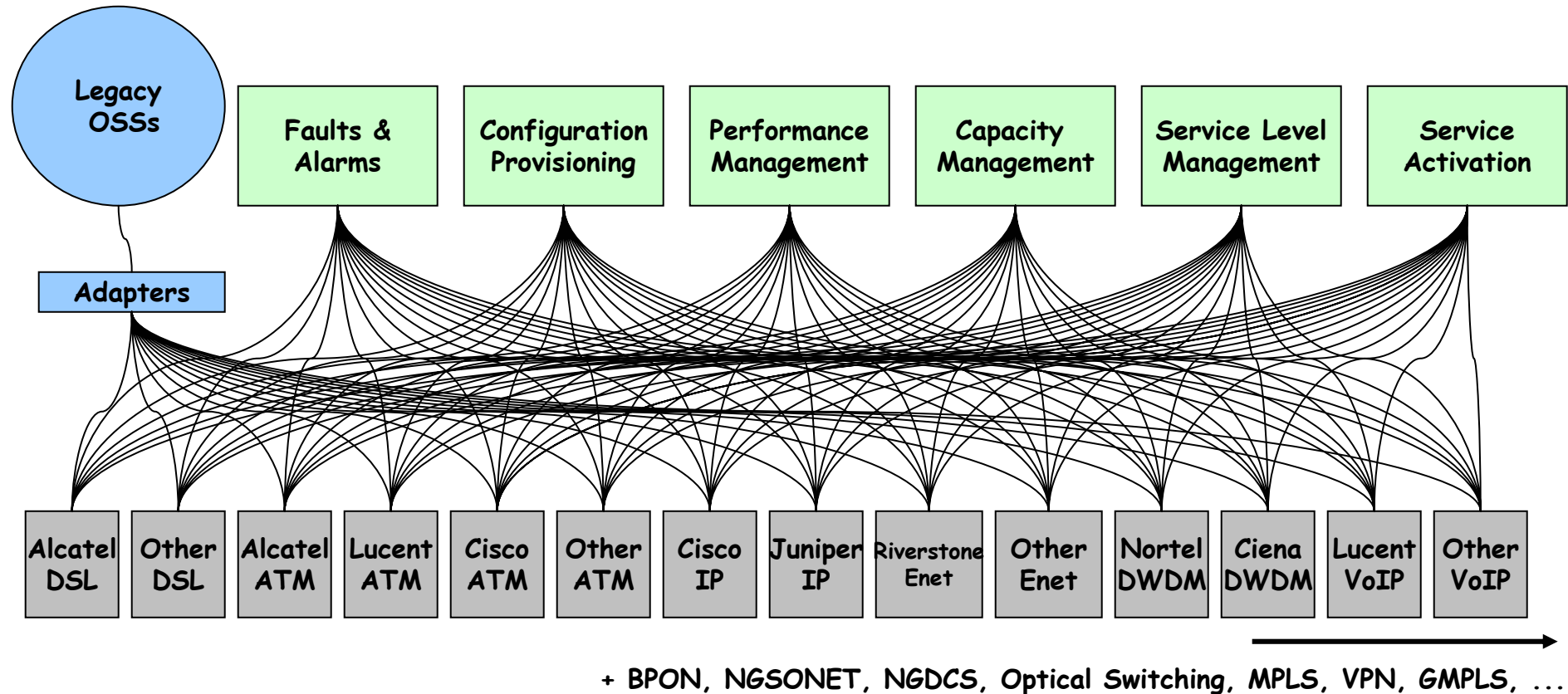
**v0.2**  
**SBC Technology Resources, Inc.**  
**19 July 2002**

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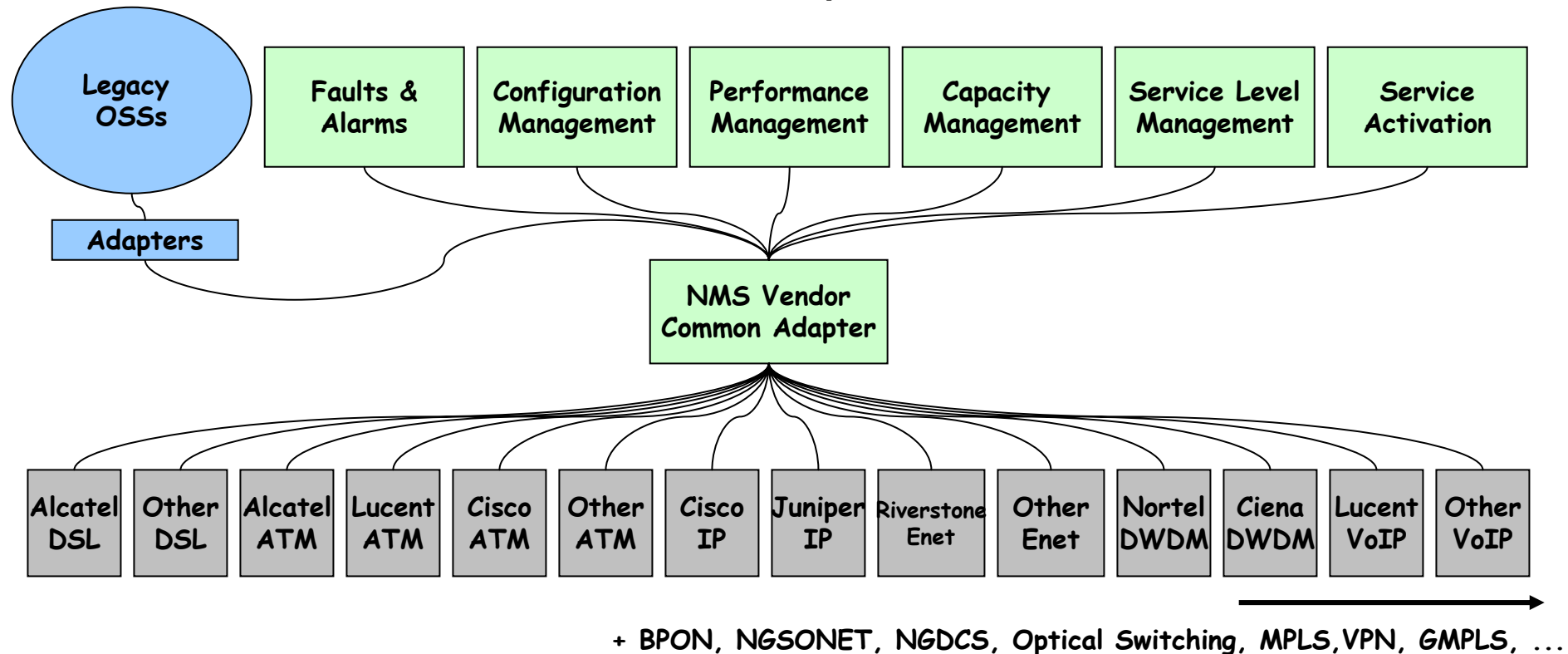
# NMS interface and integration: Current

- Each line ~ \$\$\$ + ongoing maintenance.
- Questionable sustainability



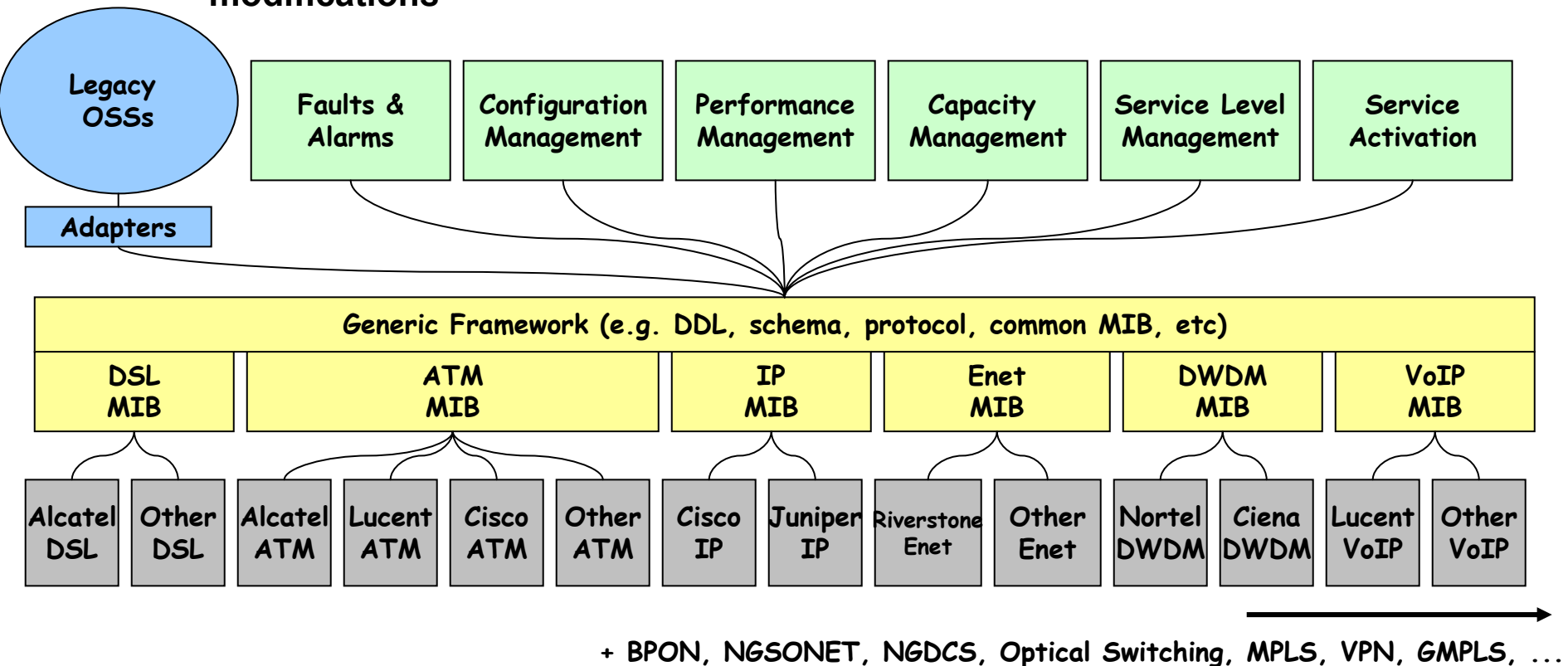
# NMS interface and integration: Single vendor

- Interface owned by vendor
  - Improved, but captive to single vendor
  - Dependent on vendor ability and service provider affordability to accommodate new services and new NE
  - NE vendor still have to build to multiple NMS vendors.



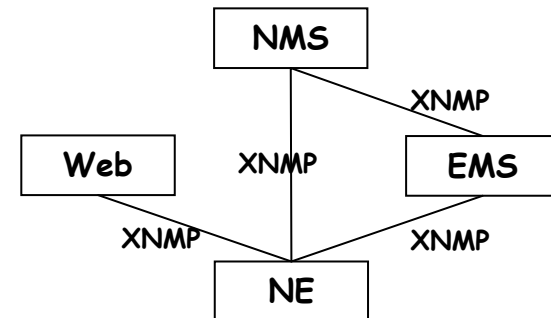
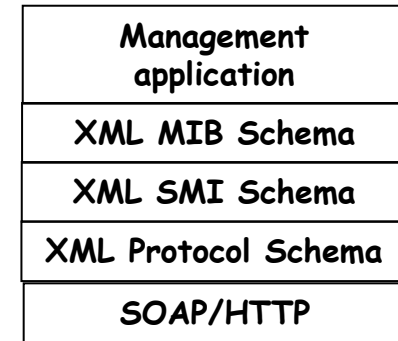
# NMS interface and integration: Goal

- Interface owned by industry
  - Generic framework leveraged by all technologies across the industry
  - Technology specific leveraged by all vendors of specific technology
  - New vendors of similar technology added without network management modifications



# XNMP: Framework

- **Data Definition Language**
  - XML SMI Schema
    - XML MIB Schema naming (XML Namespace?)
    - XML MIB instance naming (XLink?)
  - And/or casting SNMP SMIv2 to XML SMI Schema
- **Management Information Base (MIB)**
  - XML MIB Schema
  - And/or casting SNMP MIB to XML MIB Schema
- **Protocol**
  - SOAP/HTTP
  - XML Protocol Schema
    - Operation name, parameters, error codes
- **Security and administration**
  - Secure HTTP
  - Completeness
    - Configuration, Performance, Fault, Security



# XNMP: Resource - SNMP

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- **Framework**

- RFC2570 "Introduction to Version 3 of the Internet-standard Network Management Framework"
- RFC2571 "An Architecture for Describing SNMP Management Frameworks"

- **DDL**

- RFC2578 "Structure of Management Information Version 2 (SMIv2)"
- RFC2579 "Textual Conventions for SMIv2"
- RFC2580 "Conformance Statements for SMIv2"

- **MIB**

- RFC2400
- 100 modules, 10,000 objects

- **Protocol**

- RFC1157 "Simple Network Management Protocol"
- RFC1905 "Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2)"
- RFC1906 "Transport Mappings for Version 2 of the Simple Network Management Protocol (SNMPv2)"
- RFC2572 "Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)"

- **Security and administration**

- RFC2573 "SNMPv3 Applications"
- RFC2574 "User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)"
- RFC2575 "View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)"

# XNMP: Resource - XML

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- **<http://www.w3.org>**
  - **REC-xml-20001006 "Extensible Markup Language (XML) 1.0 (Second Edition)"**
    - **WD-xml11-20020425 "XML 1.1"**
  - **REC-xml-names-19990114 "Namespaces in XML"**
    - **WD-xml-names11-20020403 "Namespace in XML 1.1"**
  - **REC-xlink-20010627 "XML Linking Language (XLink) Version 1.0"**
  - **REC-xmlschema-0-20010502 "XML Schema Part 0: Primer"**
  - **REC-xmlschema-1-20010502 "XML Schema Part 1: Structures"**
  - **REC-xmlschema-2-20010502 "XML Schema Part 2: Datatypes"**
  - **WD-soap12-part0-20011217 "SOAP Version 1.2 Part 0: Primer"**
  - **WD-soap12-part1-20011217 "SOAP Version 1.2 Part 1: Messaging Framework"**
  - **WD-soap12-part2-20011217 "SOAP Version 1.2 Part 2: Adjuncts"**
  - **RFC2396 "Resource Identifiers (URI): Generic Syntax"**

# XNMP: Requirement

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- **Socrates or Sophism?**
  - **Hardware follows Moore's Law.**
    - Sufficient processor speed, memory space, and network bandwidth are available at reasonable cost.
  - **Software does not follow Moore's Law and is linear.**
    - It results high cost and long delay of implementation and maintenance.
- **Primary priority**
  - Easy to understand
  - Easy to implement
  - **Completeness of RFC**
    - Activation and assurance (configuration, performance, fault, security)
  - Reuse, not reinvent
- **Secondary priority**
  - Processing performance
  - Memory consumption
  - Bandwidth usage

# XNMP: IETF process

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- **BOF**
  - Summer 2002 (14-19 July 2002)
- **Working group**
  - Fall 2002 (17-22 November 2002)
    - Initial IDs
  - Interim meeting
  - Spring 2003
    - Revision IDs
    - Initial implementation
  - Summer 2003
    - Revision IDs
    - Implementation bake-off
  - Fall 2003
    - Last call for RFCs
    - Deployment