



NM Tools & Systems

Pertemuan 12
Manajemen Jaringan

Katalog

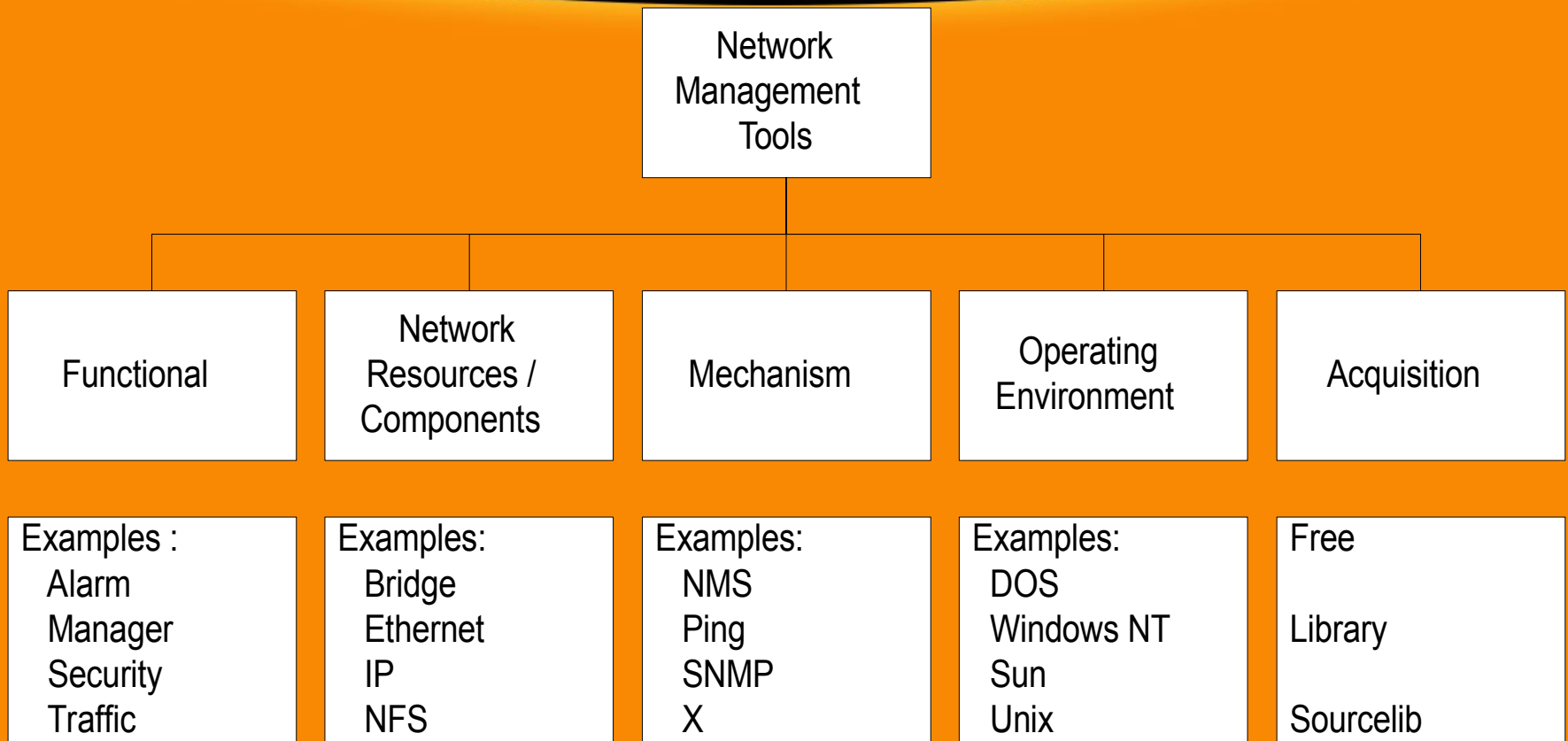


Figure 12.1 NOC Tool Categories (RFC 1470)

Software Jaringan

- Status monitoring tools.
- Traffic monitoring tools.
- Route monitoring tools.

Status Monitoring Tools

Table 12.5 Status Monitoring Tools

NAME	OPERATING SYSTEM	DESCRIPTION
ifconfig	UNIX	Obtains and configures networking interface parameters and status
ping	UNIX Windows	Checks the status of node / host
nslookup	UNIX Windows NT	Looks up DNS for name-IP address translation
dig	UNIX	Queries DNS server
host	UNIX	Displays information on Internet hosts / domains

Traffic Monitoring Tools

Table 12.6 Traffic-Monitoring Tools

Name	Operating System	Description
ping	UNIX Windows	Used for measuring roundtrip packet loss
bing	UNIX	Measures point-to-point bandwidth of a link
etherfind	UNIX	Inspects Ethernet packets
snoop	UNIX	Captures and inspects network packets
tcpdump	UNIX	Dumps traffic on a network
getethers	UNIX	Acquires all host addresses of an Ethernet LAN segment
iptrace	UNIX	Measures performance of gateways

Routing Monitoring Tools

Table 12.7 Route-Monitoring Tools

Name	Operating System	Description
netstat	UNIX	Displays the contents of various network-related data structures
arp rarp	UNIX, Windows 95/x/00NT	Displays and modifies the Internet-to-Ethernet address translation tables
tracert tracert	UNIX Windows	Traces route to a destination with routing delays

Tools Manajemen Jaringan

- SNMP command tools
- MIB Walk
- Snmpsniff

SNMP Command Tools

- snmptest
- snmpget
- snmpgetnext
- snmpset
- snmptrap
- snmpwalk
- snmpnetstat

SNMPSniff

- Tools di lingkungan Linux maupun FreeBSD.
- Menempatkan interface di promiscuous mode dan capture SNMP PDU.
- Hampir sama kegunaannya dengan TCPDump.

Statistik Jaringan

- Protocol Analyzers
- RMON Probe / Protocol analyzer
- MRTG (Multi router traffic grouper)
- Home-grown program using *tcpdump*

Traffic Load

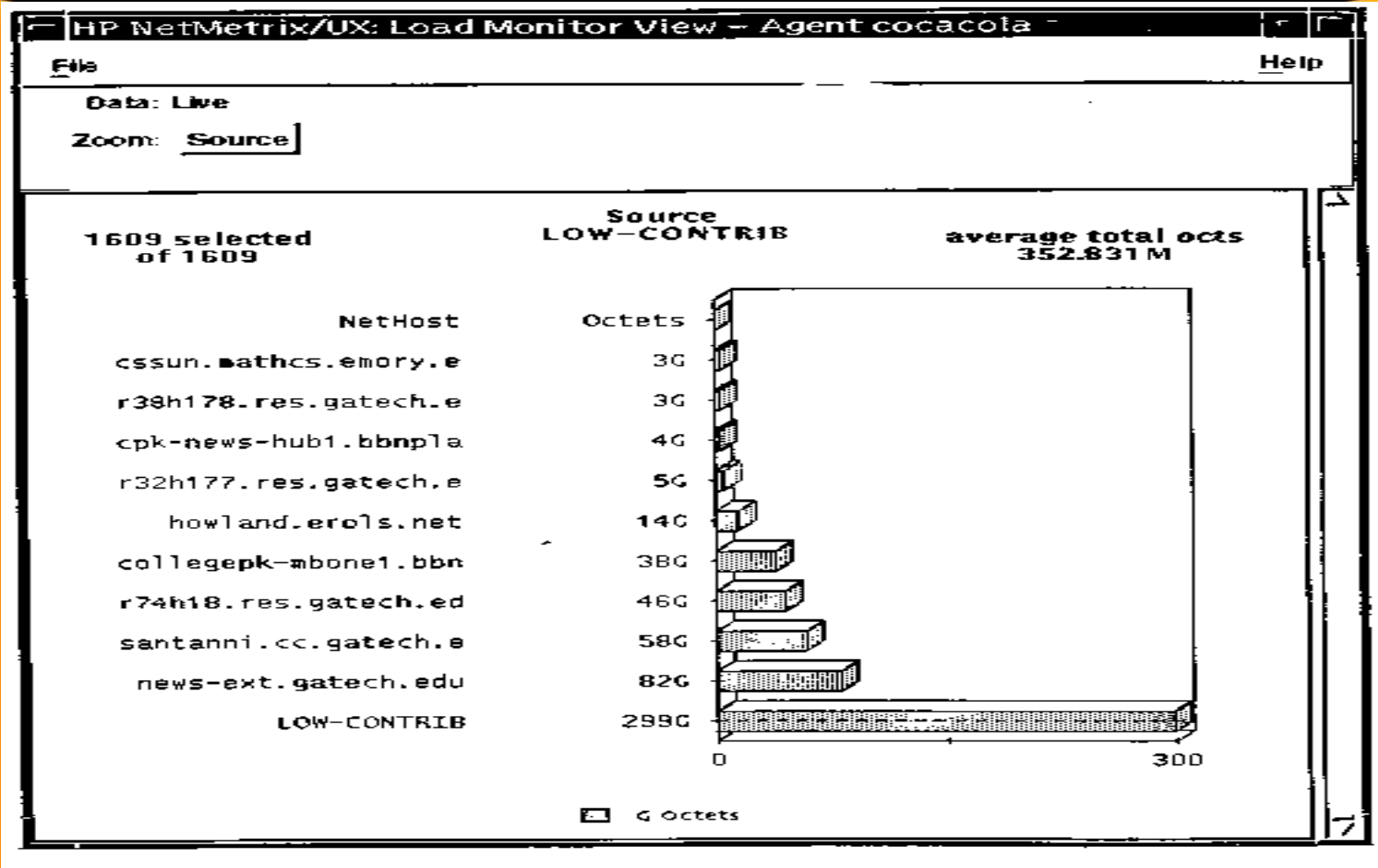


Figure 12.16 Load Statistics: Monitoring of Sources

Distribusi Protokol

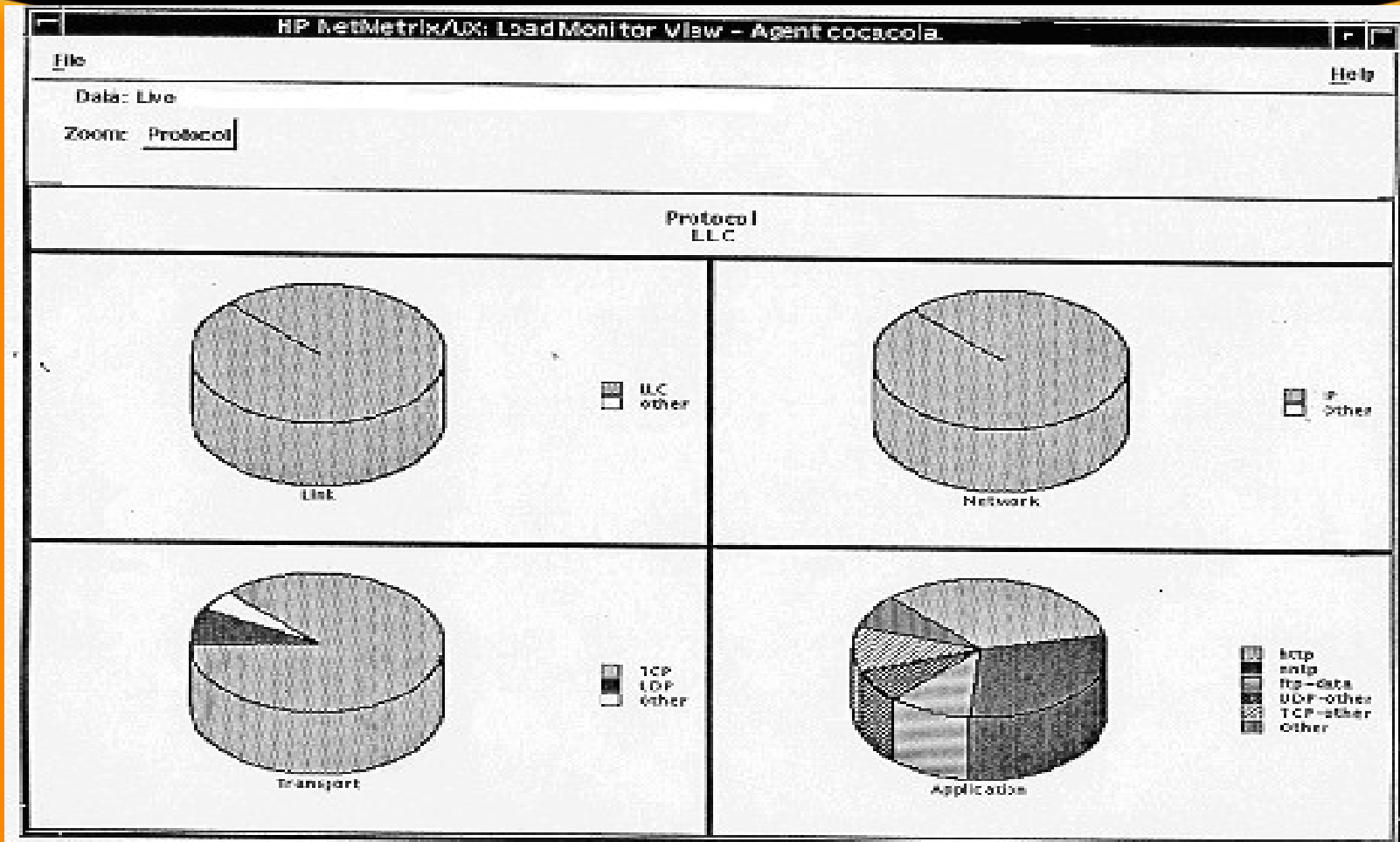
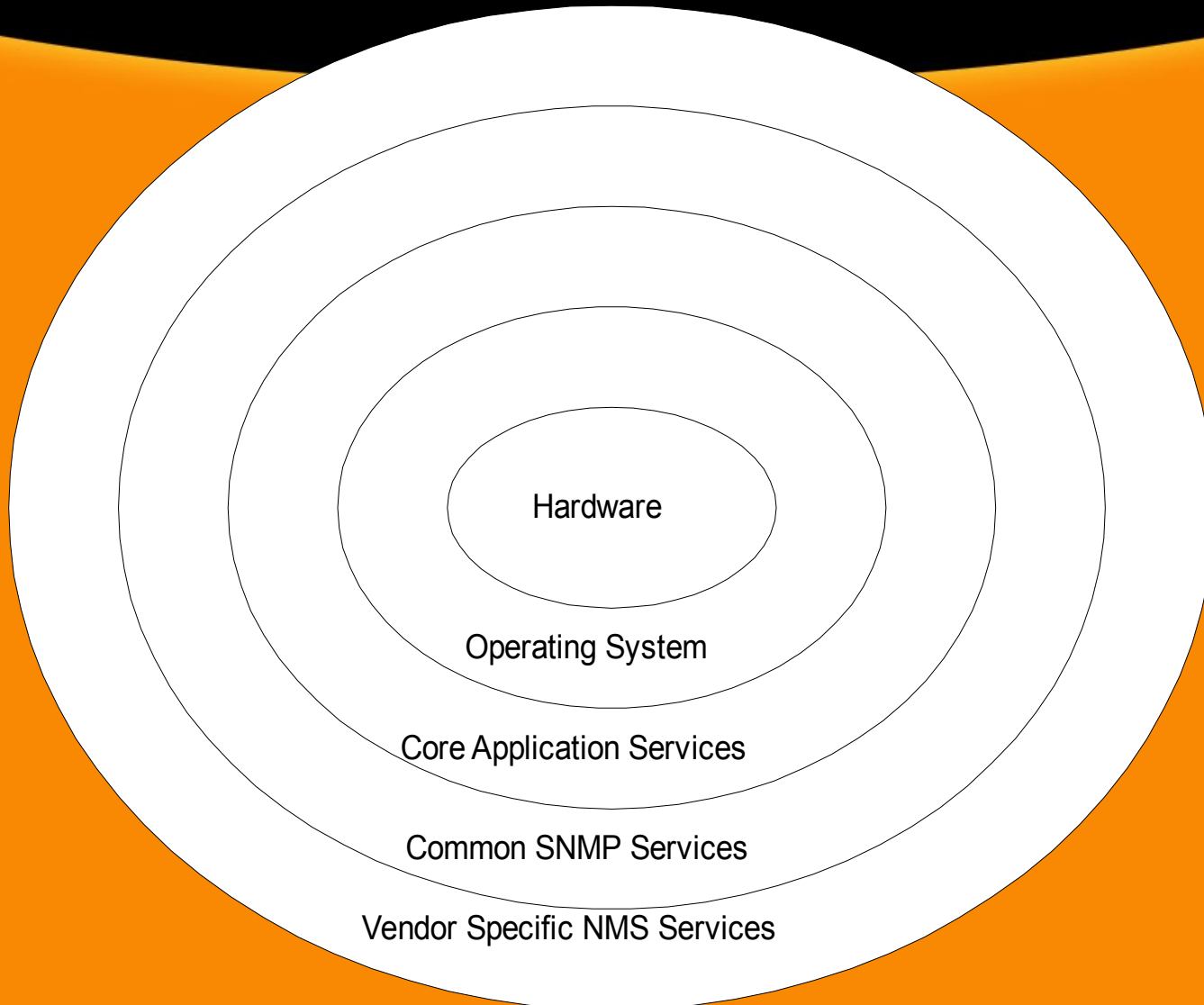


Figure 12.19 Protocol Distribution (NetMetrix)

Komponenten NMS <1>

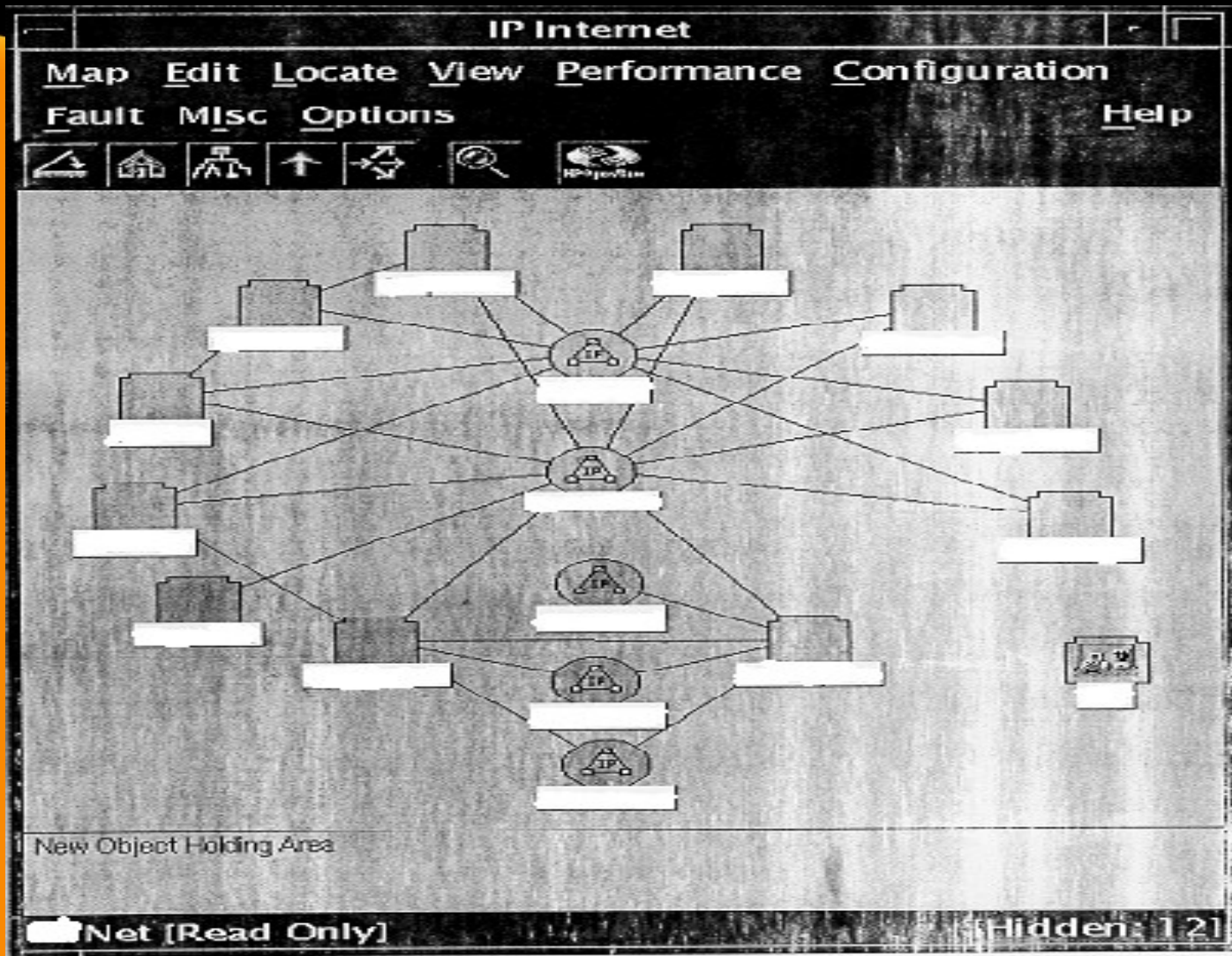


Komponen NMS <2>

Table 12.8 Network Management System Components

Component	Service	Example
Hardware	Processor Monitor Mouse and Keyboard Communications	Sun Sparc HP 9000 PC
Operating system	OS services	UNIX LINUX / FreeBSD Solaris MS Windows 95 / 98 / NT
Core application services	Display GUI Database Report generation Communication services	OpenView SunNet Manager Solstice Enterprise Manager MS Windows
Common SNMP services	SNMPv1 messages SNMPv2 messages MIB management Basic SNMP applications 3 rd party NMS API	SNMPC OpenView Network Node Manager Cabletron Spectrum Enterprise Manager IBM NetView SunNet Manager Solstice Enterprise Manager
Vendor-specific NMS services	MIB management SNMP applications Config. management Physical entity display	CiscoWorks Transcend Spectrum Element Manager / Spectrum Portable Management Application

Monitoring Jaringan



NMS Komersial

- Enterprise NMS
 - Hewlett-Packard OpenView
 - Sun SunNet Manager
 - IBM Netview
 - Cabletron Spectrum Enterprise Manager
- Low End NMS
 - SNMPc
- System & Network Management
 - Computer Associates Unicenter TNG
 - Tivoli TME / Netview
 - Big Brother
 - Spong

Jaringan dan Sistem Mgmt

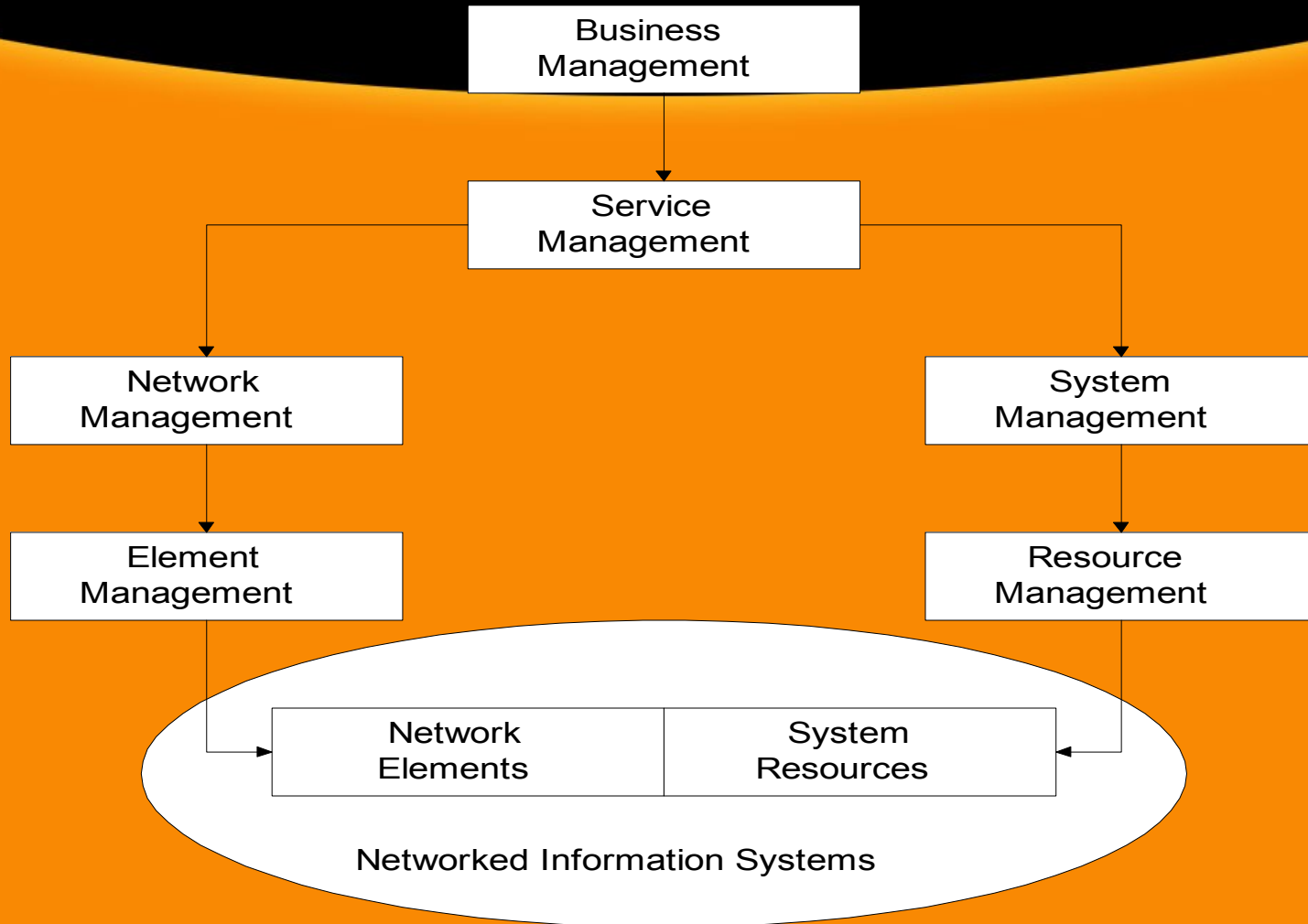


Figure 13.1 Network and System Management

Karakteristik Jaringan (IETF RFC 2063)

International
Backbones / National

Regional / Midlevel

Stub / Enterprise

End-Systems / Hosts

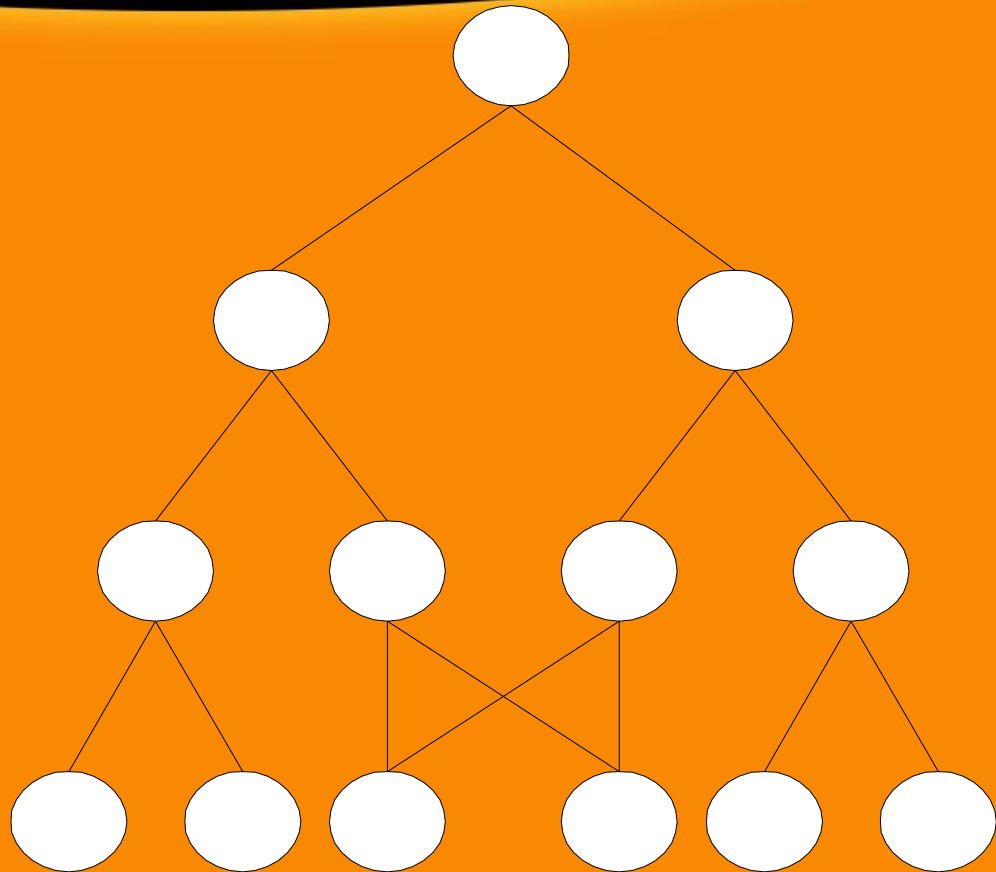


Figure 13.6 Traffic Flow Measurement Network Characterization

Rule-Based Reasoning <1>

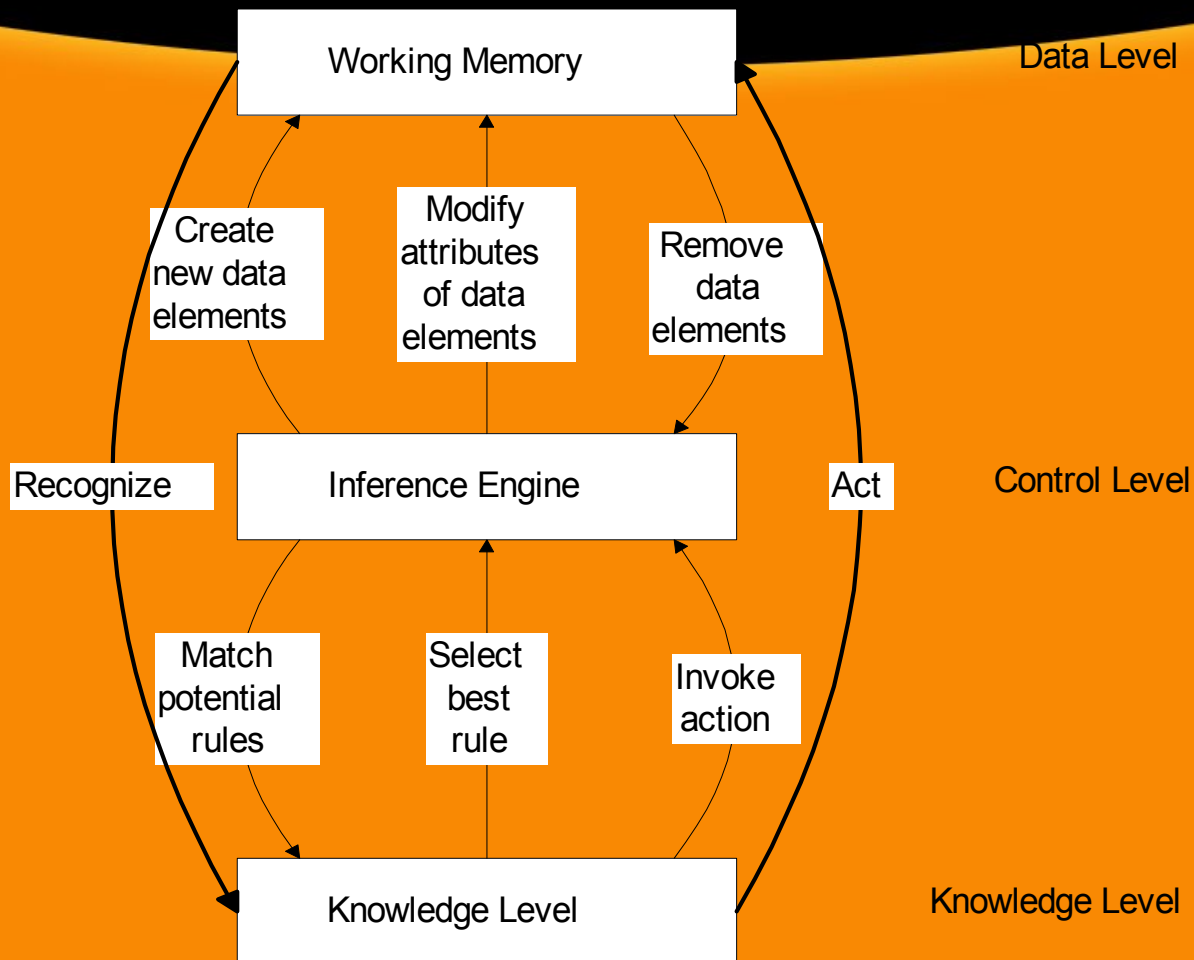
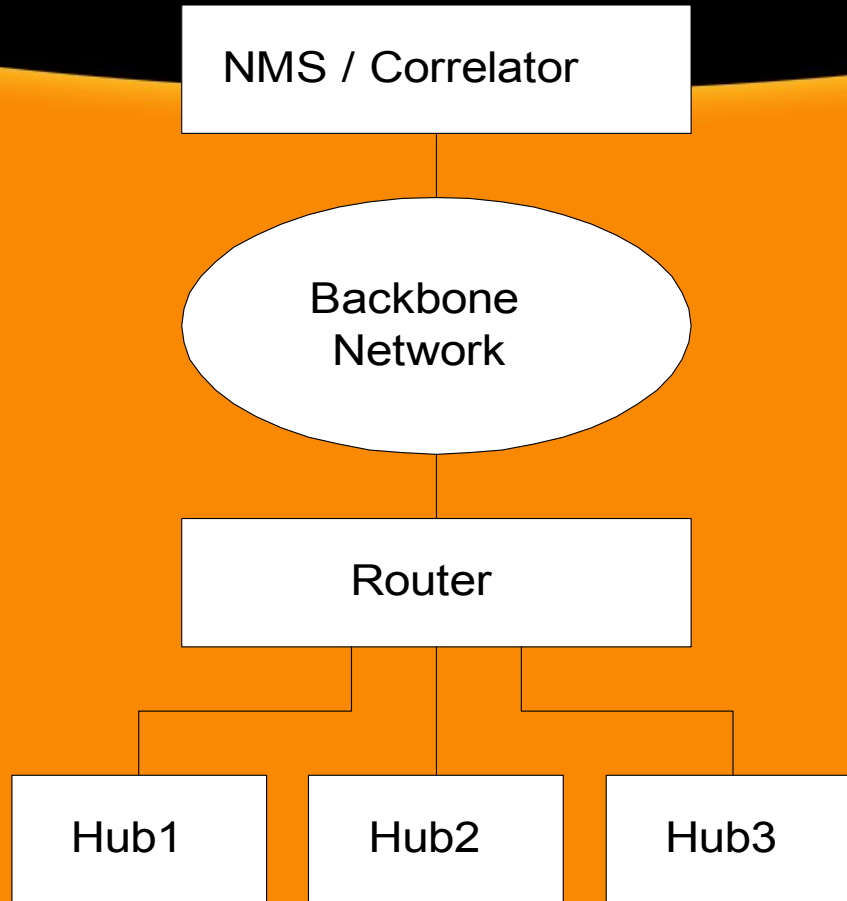


Figure 13.7 Basic Rule-Based Reasoning Paradigm

Rule-Based Reasoning <2>

- RBR memonitoring keadaan di dalam jaringan.
- Problem berdasarkan knowledge:
 - if packet loss $< 10\%$ alarm green
 - if packet loss $\Rightarrow 10\% < 15\%$ alarm yellow
 - if packet loss $\Rightarrow 15\%$ alarm red
- Solusinya menggunakan fuzzy logic.

Transisi Model <1>



Physical Network

Transisi Model <2>

- NMS ping hub setiap menit.
- Failure terindikasi apabila hub absen dalam mengirim respon

Manajemen Keamanan

- SNMP V3.
- Prosedur dan Kebijakan.
- Proxy.
- Firewall.
- Kriptografi.
- Otentifikasi dan Otorisasi.
- Ticket-Granting System.
- Anti virus.
- Sistem backup dan restore.

The End