The IISc Campus Network & Services

H.Krishnamurthy,

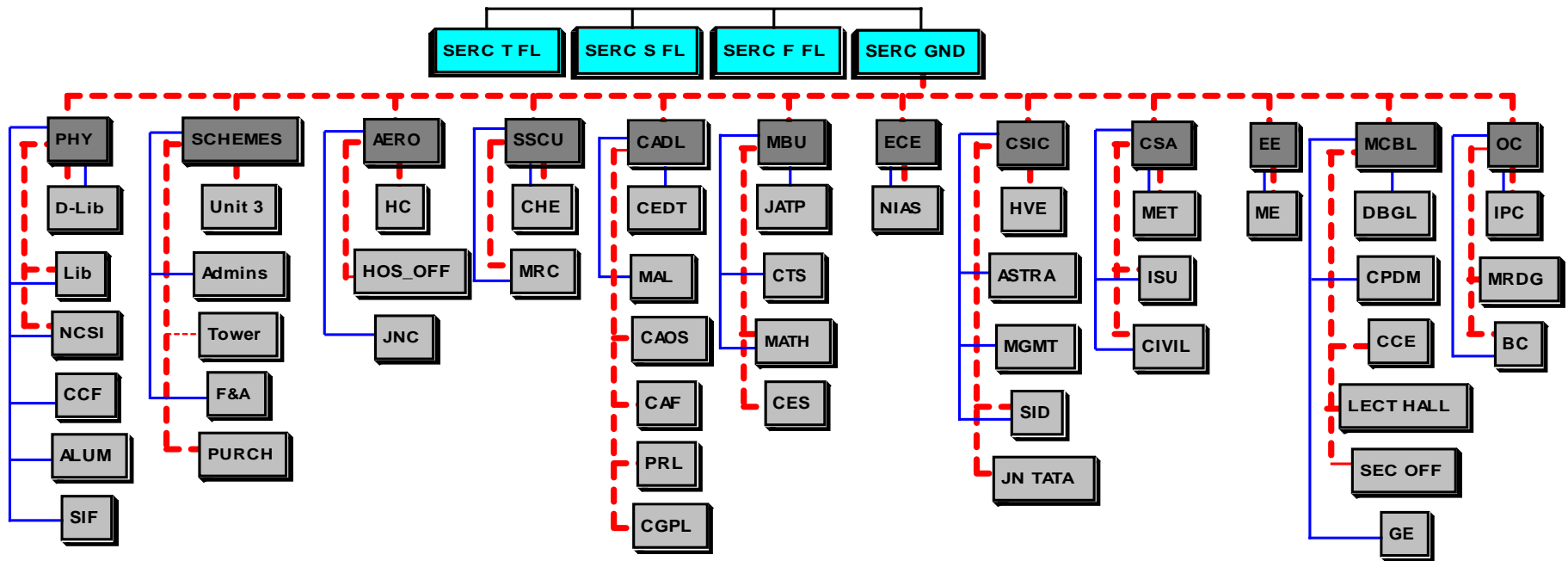Gopi Krishna S Garge

S E R C

21 Aug, 2006

Agenda

- Campus network structure

- Services

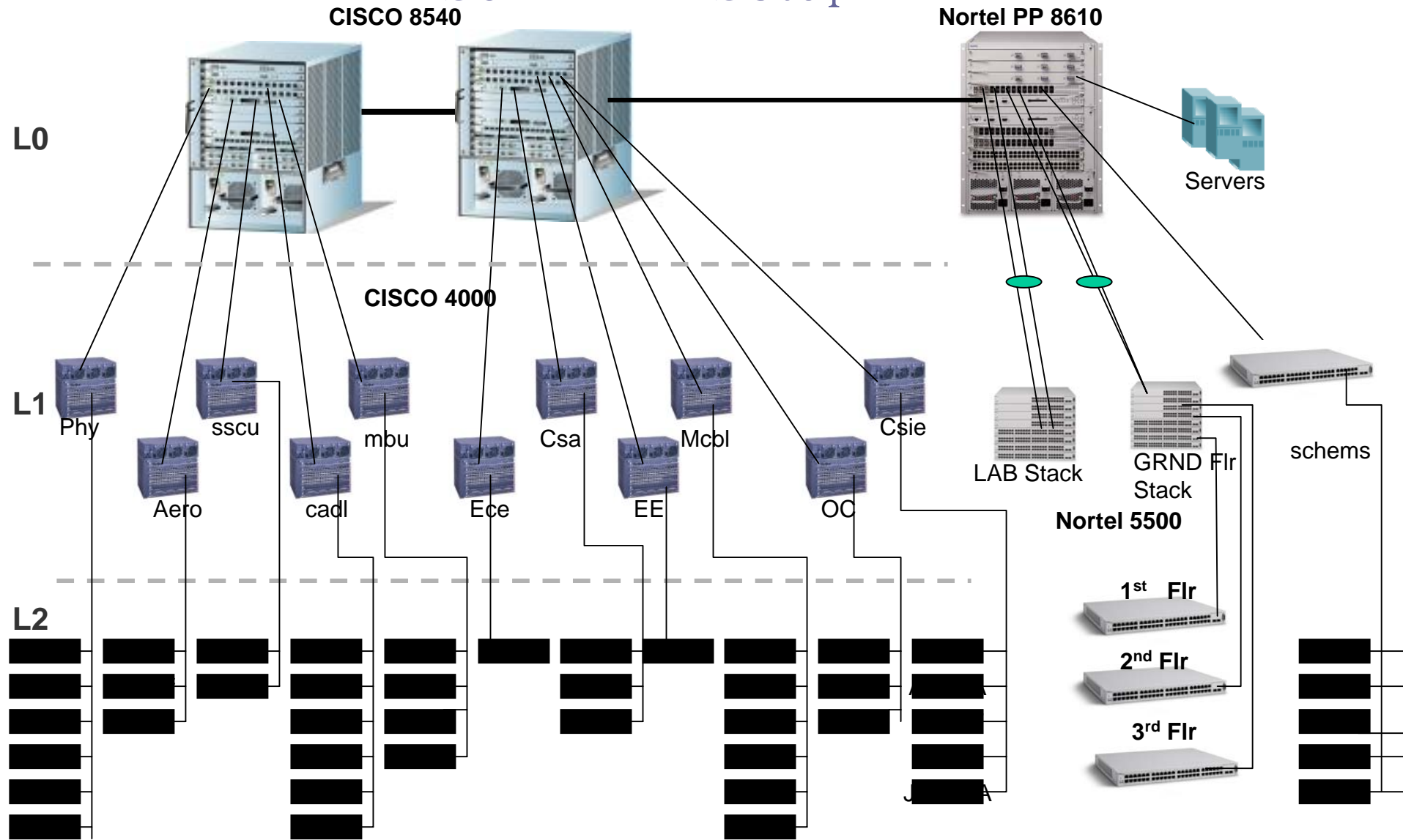- Network Usage

- Questions

Campus Network Structure

- Tree Topology
  - Levels 1, 2, 3, etc.
- Single mode fibre
- Gigabit Ethernet
- IP Addressing
  - Private IP addresses
  - Addressing adapts to topology
- Host/resource naming (FQDN)
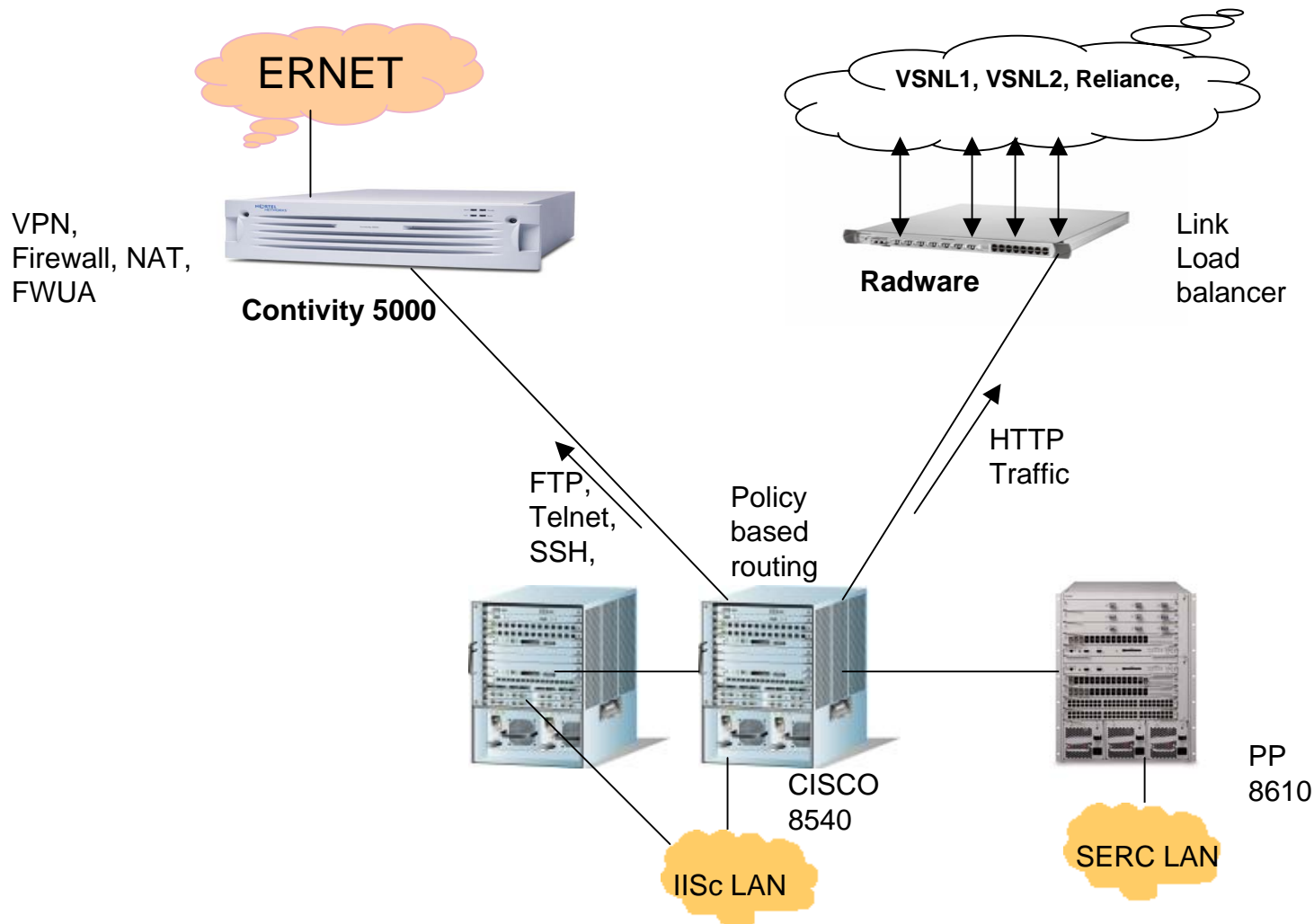
21 Aug, 2006

Fiber connectivity details

SERC T FL   SERC S FL   SERC F FL   SERC GND

PHY — D-Lib, Lib, NCSI, CCF, ALUM, SIF

SCHEMES — Unit 3, Admins, Tower, F&A, PURCH

AERO — HC, HOS_OFF, JNC

SSCU — CHE, MRC

CADL — CEDT, MAL, CAOS, CAF, PRL, CGPL

MBU — JATP, CTS, MATH, CES

ECE — NIAS

CSIC — HVE, ASTRA, MGMT, SID, JN TATA

CSA — MET, ISU, CIVIL

EE — ME

MCBL — DBGL, CPDM, CCE, LECT HALL, SEC OFF, GE

OC — IPC, MRDG, BC

- - - **--> SMF**

——— **--> MMF**

L2 block

L1 block

SERC

21 Aug, 2006

IISc LAN – Setup

CISCO 8540

Nortel PP 8610

L0

Servers

CISCO 4000

L1

Phy   sscu   mbu   Csa   Mcbl   Csie

Aero   cadl   Ece   EE   OC

LAB Stack   GRND Flr Stack   schems

Nortel 5500

L2

1st Flr

2nd Flr

3rd Flr

21 Aug, 2006

What's in your department ?

- One managed Ethernet switch on the campus network
- Cabling and devices within the department belong to the department/labs
- Department/lab web servers
- Department mail servers
- Other internal services

Internet Access

- Campus connects to three providers – ERNET, VSNL, Reliance
- Aggregate bandwidth of 20 Mbps
- All links are fully utilized
- A *bandwidth manager* manages the aggregate bandwidth
- Internet Services – DNS, email, web browsing

21 Aug, 2006

IISc WAN – Links

ERNET

VSNL1, VSNL2, Reliance,

VPN,
Firewall, NAT,
FWUA

Contivity 5000

Link
Load
balancer

Radware

HTTP
Traffic

FTP,
Telnet,
SSH,

Policy
based
routing

CISCO
8540

PP
8610

IISc LAN

SERC LAN

Internet Resources

- Domain Naming Services (DNS)
  - Resolve a FQDN to an IP address
- External DNS
  - Resolve names in domains outside campus
- Internal DNS
  - Resolve names in domains within campus
- Register your hosts in IDNS
- Use only FQDN to access resources

Internet Resources

- Distributed email services
  - Each department has its own mail server
  - Incoming email
    - Via a central server at ERNET
    - Filtered for virus and spam
  - Outgoing email
    - Direct from departments
    - Some departments send through the ERNET server

- Your email account is on your department server (`yourid@yourdept.iisc.ernet.in`)

21 Aug, 2006
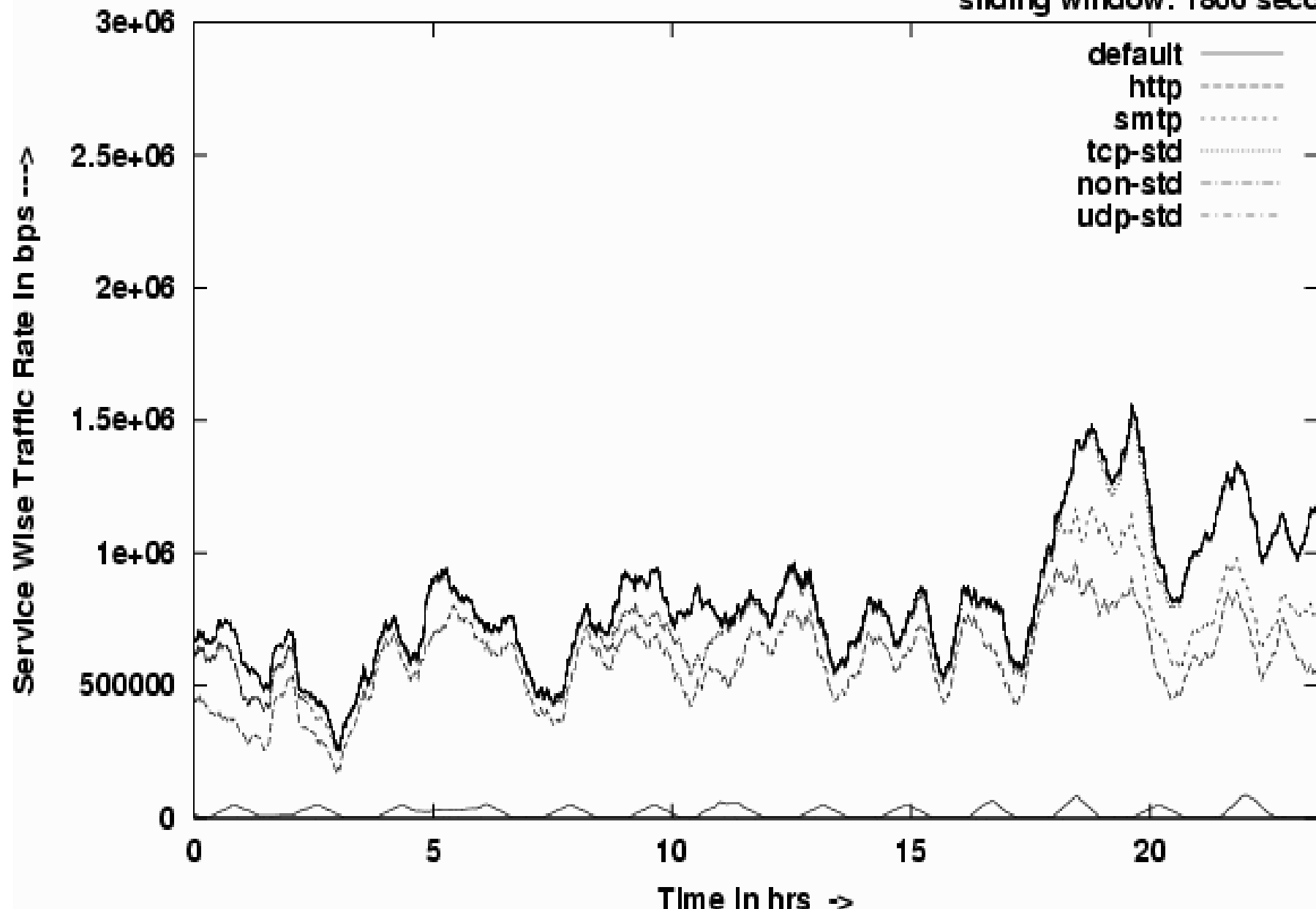
Web Services

- Access to web based services is via a WWW proxy –
  iiscproxy1.serc.iisc.ernet.in, port 3128

- Campus web server – www.iisc.ernet.in

- Department web servers host local information

- Your content is hosted on the department server

21 Aug, 2006

WWW access

- Generic WWW access
- Access to e-journals
  - Both Engineering and Science journals
  - Subscribed service accessible only through proxies
- More information – www.ncsi.iisc.ernet.in

Outbound Traffic From iisc-net

start: 20060820 00:00:00
stop : 20060820 23:59:00
sliding window: 1800 seconds

default ———
http --------
smtp ....
tcp-std ....
non-std -.-.-.-
udp-std -..-..-

Service Wise Traffic Rate In bps --->
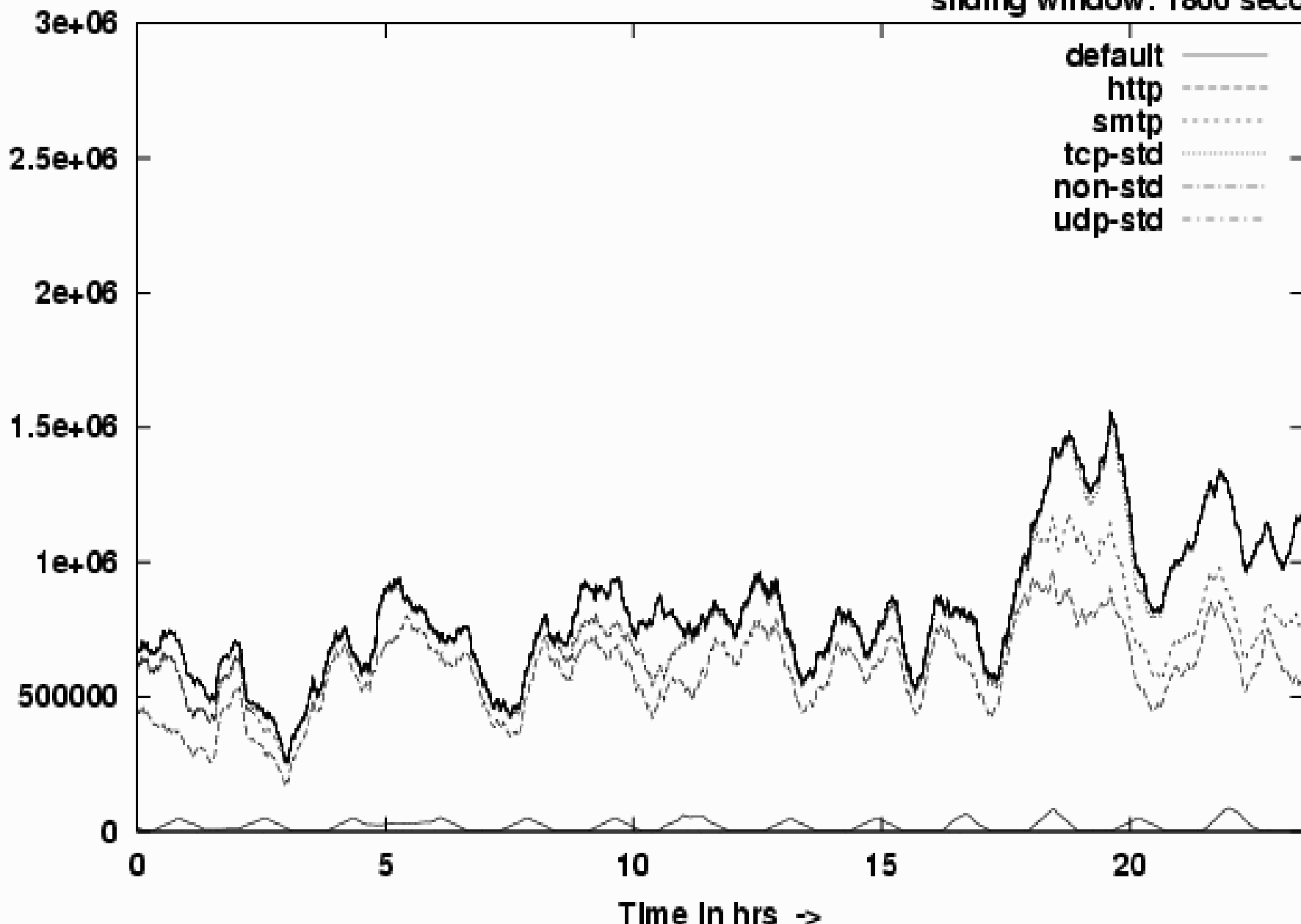
Time In hrs ->

Outbound Traffic From iisc-net

start: 20060820 00:00:00
stop : 20060820 23:59:00
sliding window: 1800 seconds

Service Wise Traffic Rate in bps --->

Time in hrs ->

default
http
smtp
tcp-std
non-std
udp-std

Support: Who to call ?

- Problems with Internet Access
  - Your local systems administrator
  - Email to nethelp@serc.iisc.ernet.in
  - Call SERC, ask for nethelp and leave a message
- All other problems
  - Your local systems administrator

Network Usage

- Usage within campus
  - Use FQDNs and not IP addresses
  - Report problems instantly
  - Keep your systems updated with anti-virus software
  - Should you feel that your system is very slow, report it
  - Have your system's configuration audited
- Access outside campus
  - DO NOT access objectionable content
  - DO NOT intrude into other networks/services

21 Aug, 2006

Questions ?

IISc Present Network Setup

ERNET

VSNL1, VSNL2, Reliance,

Contivity 5000

Radware

PP 8610

CISCO 8540

Default Route

Default Route

Servers

Services LAN

LAB Stack

GRND Flr Stack

Schems

IISC LAN (-)
SERC,
Schems NW

First Flr

IISC LAN (+)

SERC,
Schems

Second Flr

Third Flr

CISCO Networks

Nortel Networks

21 Aug, 2006