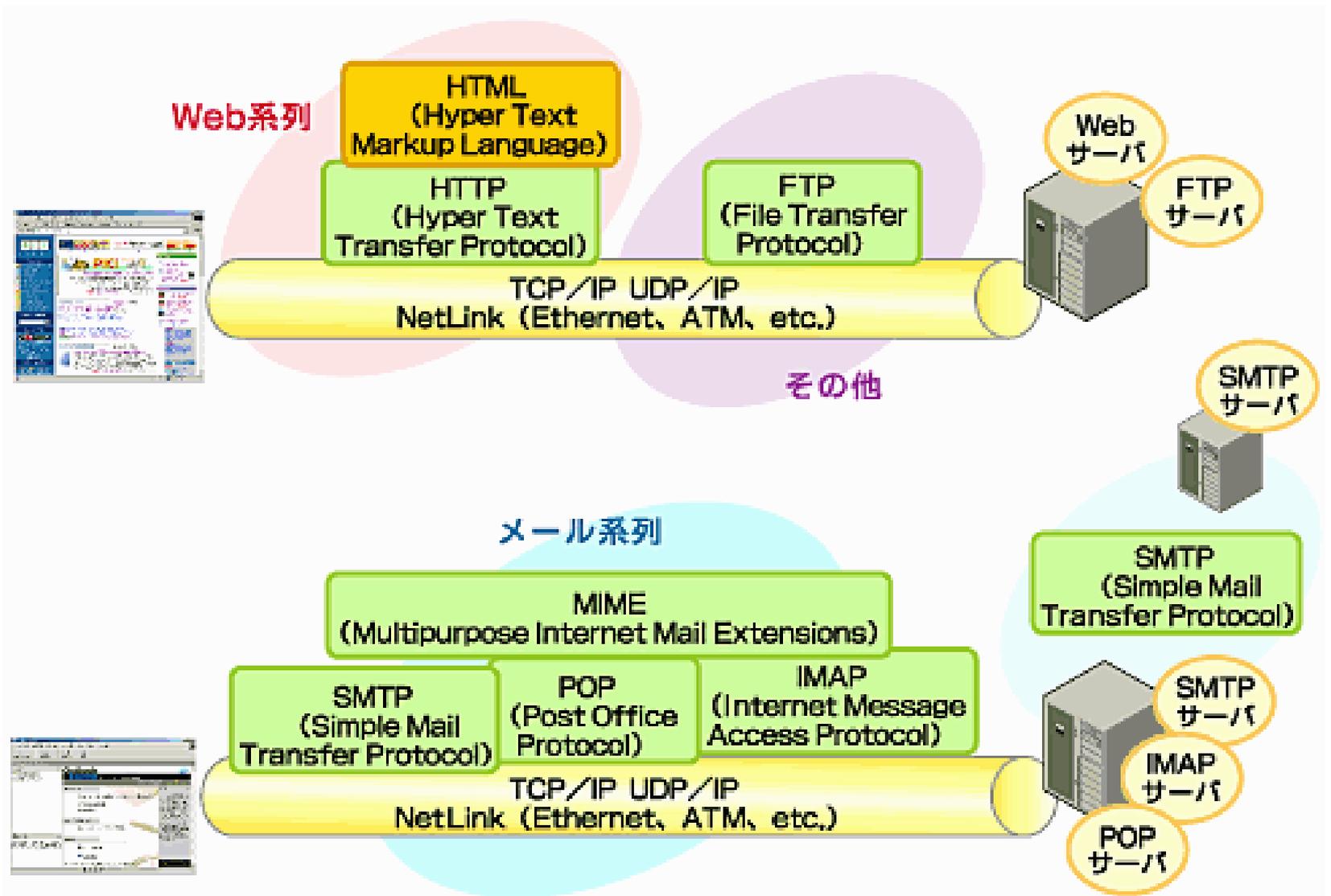


Summer School in Katmandu 2005

Class of the Information Technology

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Internet Protocol



OSI Reference Model

Layer	Name	Feature
7 th	Application Layer	It controls the communication of the application which was equipped with the communication facility.
6 th	Presentation Layer	It codes a character data and image data.
5 th	Session Layer	It does the choice of the communicate-mode (the full duplex and the half duplex) and a control about the information transfer.
4 th	Transport Layer	It provides the transmission method to transmit a dater with high quality surely.
3 rd	Network Layer	It decides a route in the center in the network which extends among more than one computer.
2 nd	Data Link Layer	It recovers the mistake of the transmitted dater. Then, it improves the reliability of the dater.
1 st	physical layer	It changes a dater into the electronic signal and it transmits it.

4 layers of TCP/IP

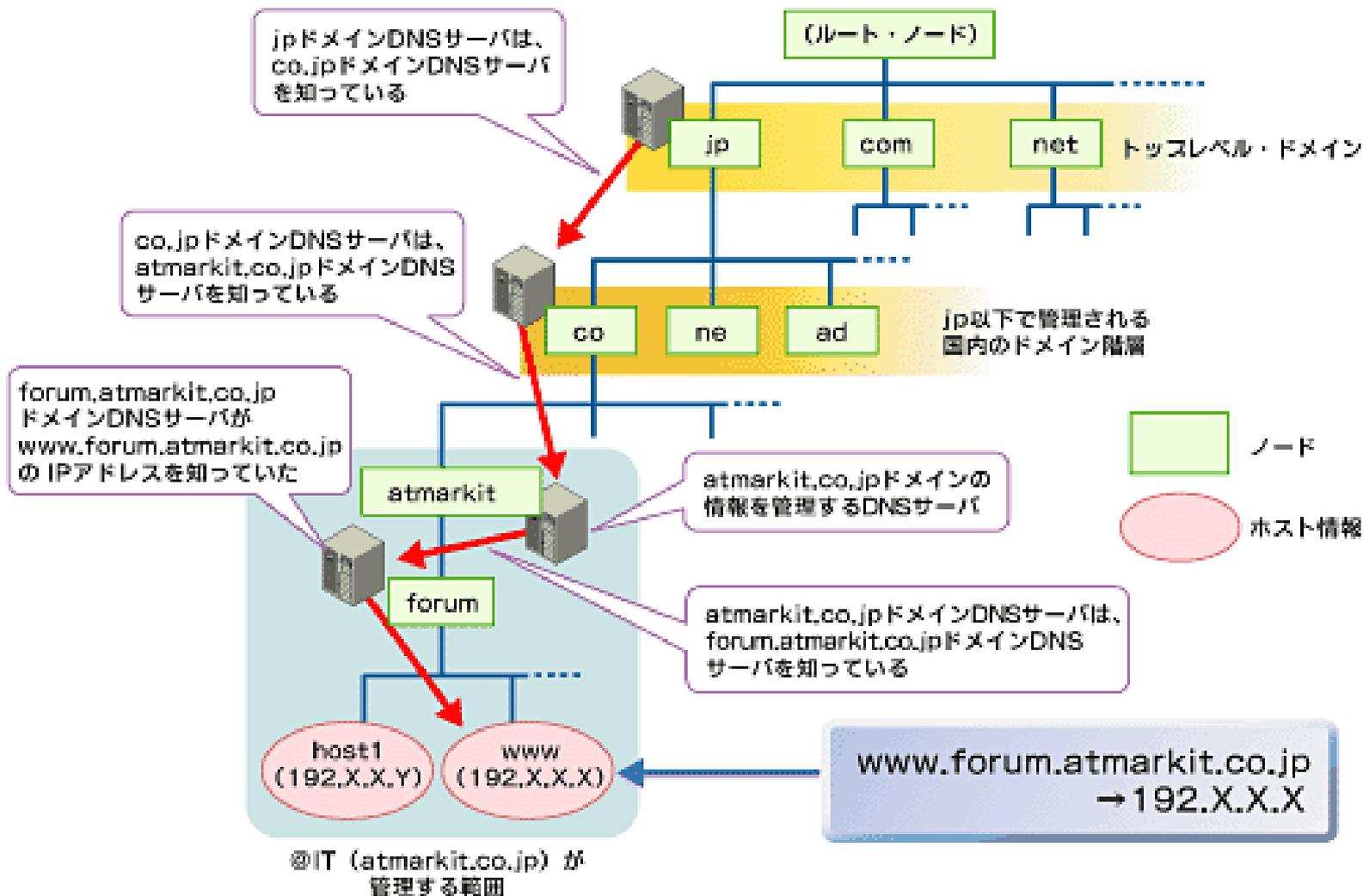
4 layers of TCP/IP correspond to somewhere of the OSI Reference Model in 7 layers. Also, the network equipment is using a mechanism in each layer according to the feature.

OSI Reference Model	TCP/IP Model Layer	Protocol	Media
Application	Application	DNS,SMTP,POP3,HTTP,FTP SSH,SNMP,NFS,TELNET and so on	L7 Switch
Presentation			
Session			
Transport	Transport	TCP, UDP, NetBIOS, and so on	L4 Switch
Network	Internet	IPv4, IPv6, ICMP, and so on	L3 Switch / Router
Data Link	Network Interface	Ethernet, FDDI, PPP, and so on	L2 Switch / Bridge
Physical			Repeater / HUB

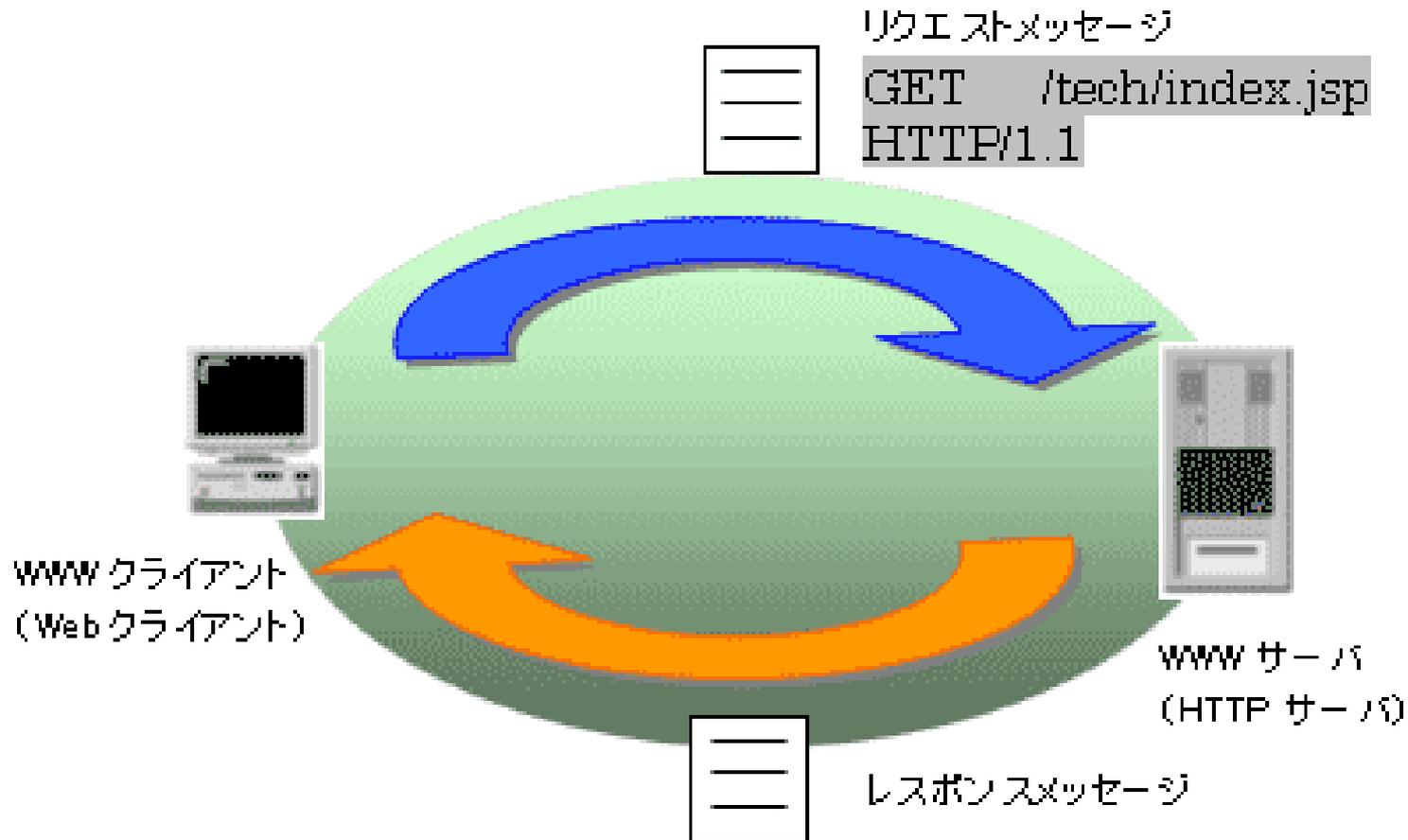
Internet Services

DNS	Domain Name System (Service)
Mail	Send (SMTP) and Receive (POP)
WWW	Word Wide Web
DHCP	Dynamic Host Configuration Protocol
telnet	operate a computer, being remote.
ftp	File Transfer Protocol
Proxy	caches a data and access by the substitute.
Firewall	It protects the privacy of the personal information, and it keeps out an invasion by the malevolence.
Samba	File Sharing with Microsoft Windows OS
Netatalk	File Sharing with Apple Macintosh OS
Skype	Voice chat software which anyone can use easily
And so on ...	

The mechanism of DNS

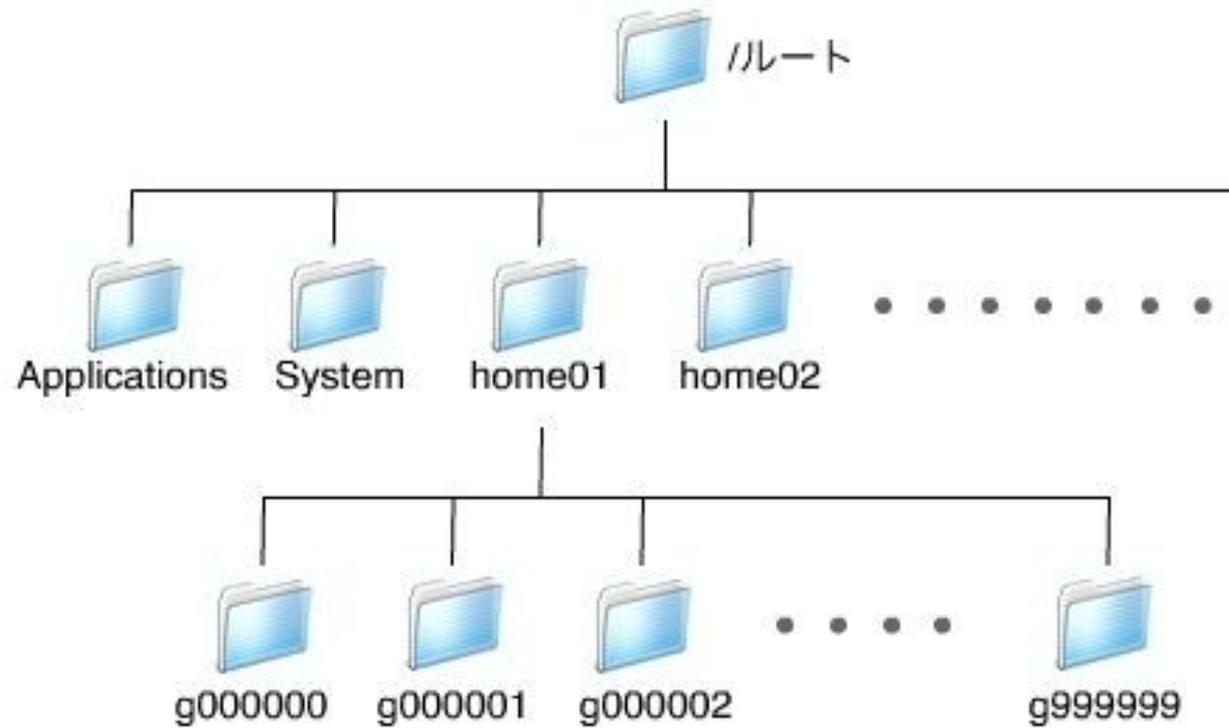


WWW http (Hyper Text Transfer Protocol)



http://www.stackasterisk.jp/tech/engineer/practiceNetwork06_01.jsp

Hierarchical File System



Permission of Files

	Owner	Group	Others
Read	r-- --- ---	--- r-- ---	--- --- r--
Write	-w- --- ---	--- -w- ---	--- --- -w-
Execute	--x --- ---	--- --x ---	--- --- --x
Octal	421--- ---	--- 421 ---	--- --- 421

$rw xr-x = 4+2+1 \quad 4+0+1 \quad 4+0+1 = 755$

$rw-rw-r-- = 4+2+0 \quad 4+2+0 \quad 4+0+0 = 664$