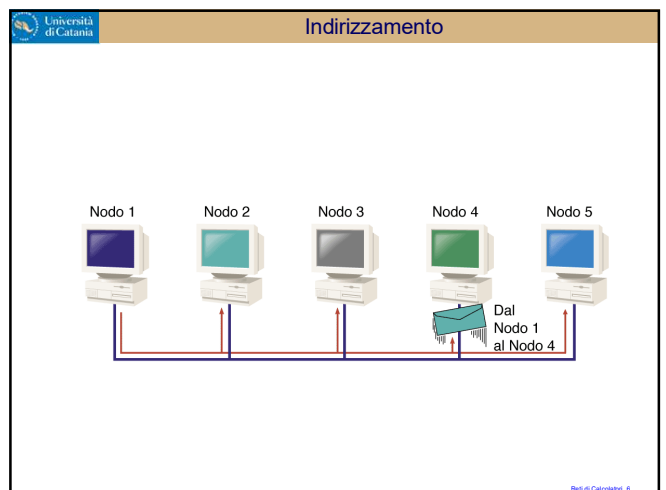
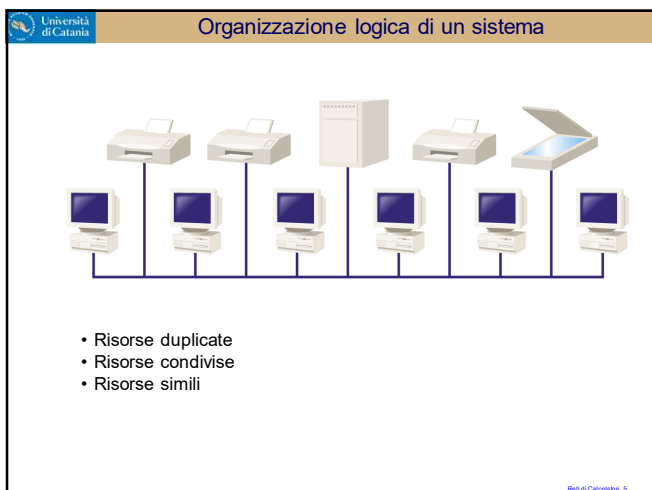
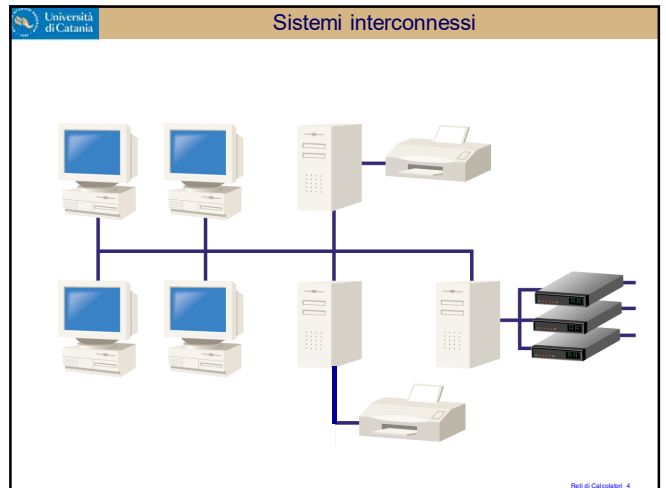


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Cloud Computing

"The interesting thing about cloud computing is that we've redefined cloud computing to include everything that we already do.... I don't understand what we would do differently in the light of cloud computing other than change the wording of some of our ads." (Larry Ellison - CEO Oracle)

Reti di Calcolatori 3



Organizzazione di un sistema di comunicazione

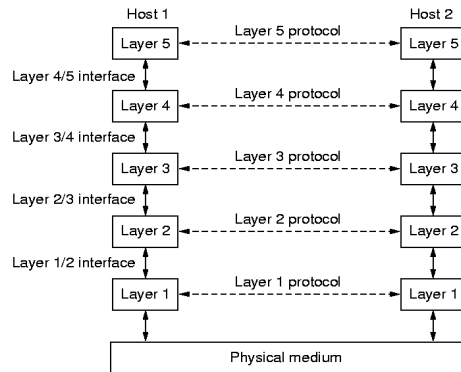
Un **sistema di comunicazione** è composto da due parti:

- 1) Un mezzo fisico
- 2) Una struttura logica (software)



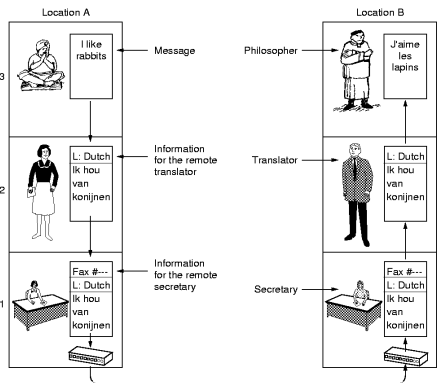
Ref: di Calabrese 7

Protocolli




Ref: di Calabrese 8

Schema di comunicazione



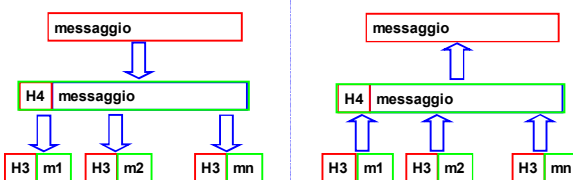
Ref: di Calabrese 9

Schema di comunicazione



Ref: di Calabrese 10

Schema di comunicazione



Ref: di Calabrese 11

Protocol Headers

0000	00 07 e9 7c 22 fc 00 11 93 85 e0 c4 08 00 45 00	... "......E.
0010	00 2c db 26 40 00 3f 06 0e 77 86 e2 20 37 86 e2	...&@.?..w.. 7..
0020	24 33 01 bd 12 3f 3d fa 0f b6 a8 6f 87 c0 50 18	\$3...?=...o..P.
0030	bc 40 8a 7c 00 00 85 00 00 00 00 00	.0..

Ethernet Header:
 src addr: 00 07 e9 7c 22 fc
 dest addr: 00 11 93 85 e0 c4

IP Header:
 src addr: 134.226.36.55
 dest addr: 134.226.36.51

TCP Header:
 src port: 445
 dest port: 4671

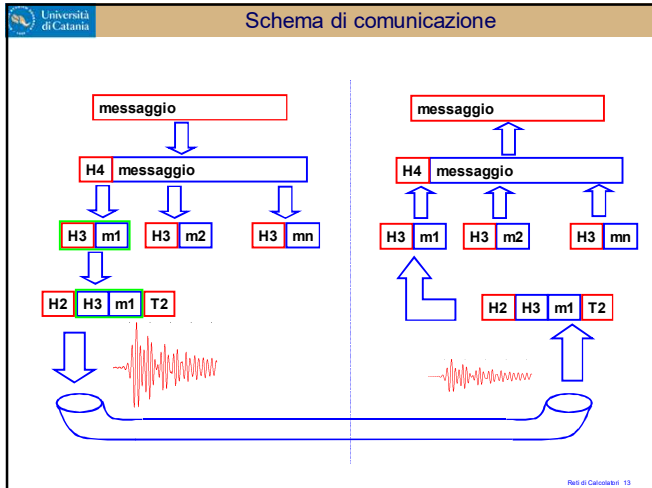
NetBios Information

Header Information (56 bytes)

Overhead di comunicazione

Payload (4 bytes)
 Carico Utile

Ref: di Calabrese 12



Problemi

Gli **utenti** (le applicazioni) vogliono un canale di comunicazione (virtuale) **affidabile e privo di errori**.

Il canale virtuale è implementato utilizzando **canali fisici**

- il canale fisico può essere simplex, half-duplex o full-duplex
- i messaggi a basso livello non possono essere di lunghezza arbitraria
- un trasmettitore veloce non deve sommergere un ricevitore lento
- bisogna determinare il percorso (migliore ?) per arrivare a destinazione
- l'ordine d'arrivo dei messaggi deve essere uguale a quello di spedizione

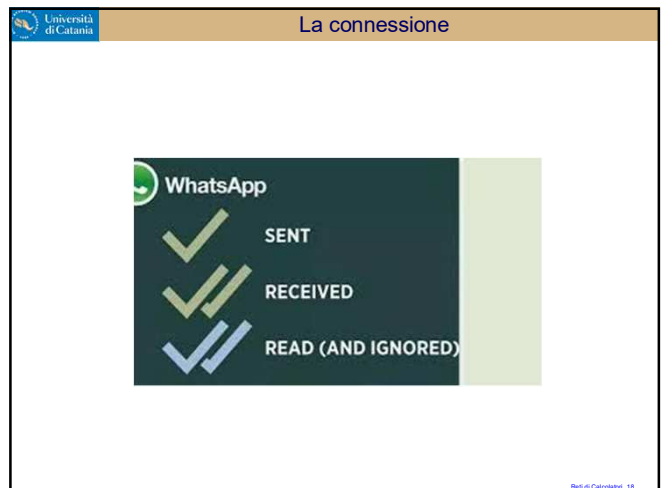
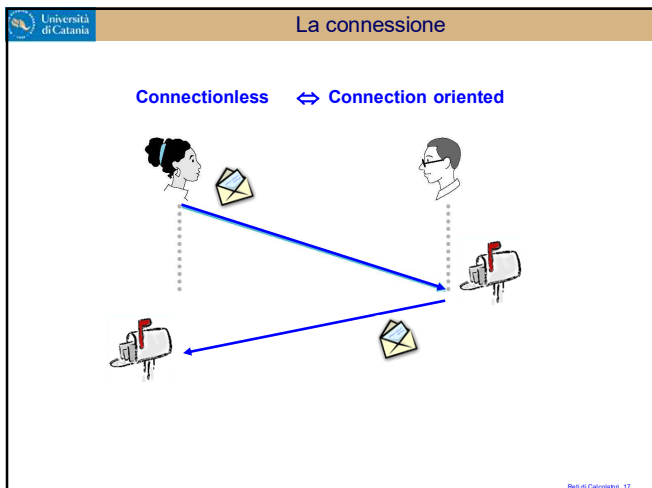
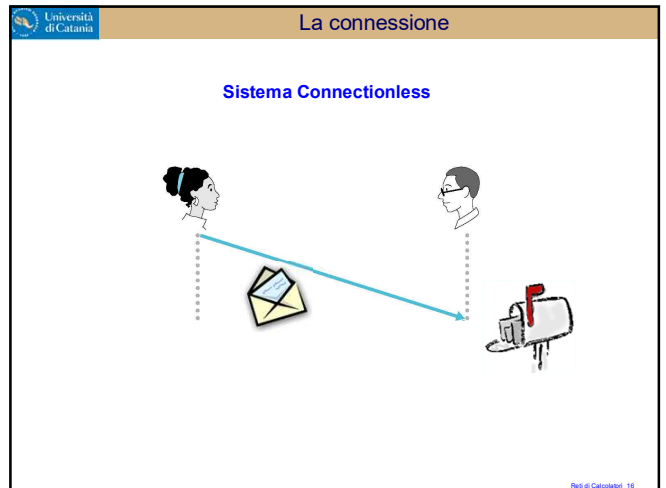
Ref: di Calabrese 14

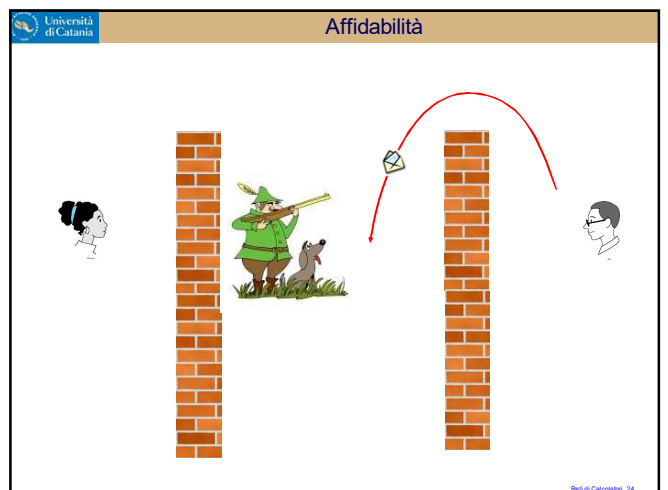
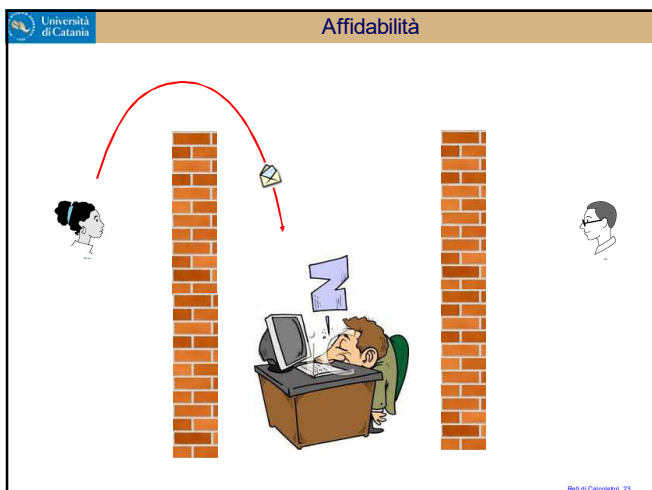
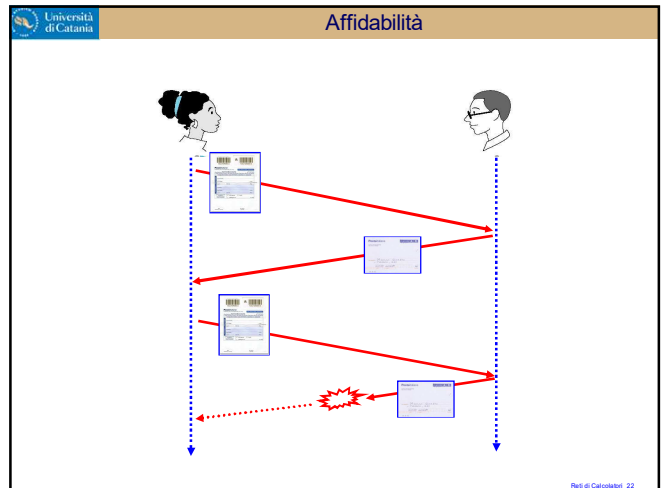
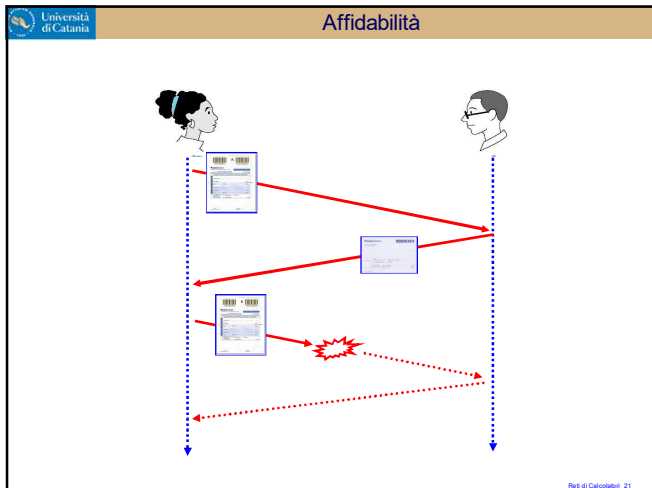
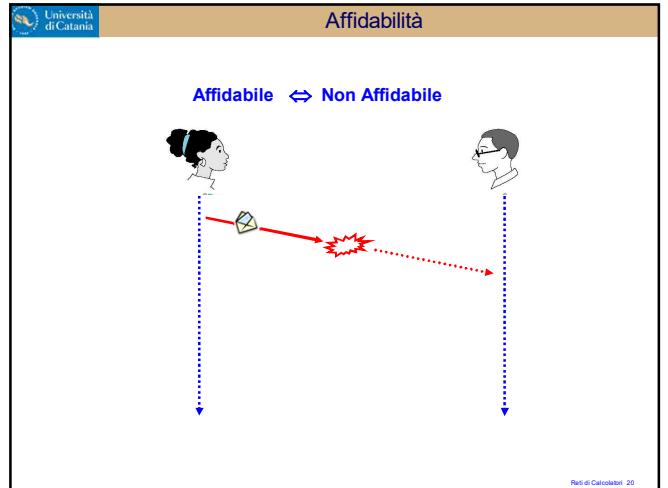
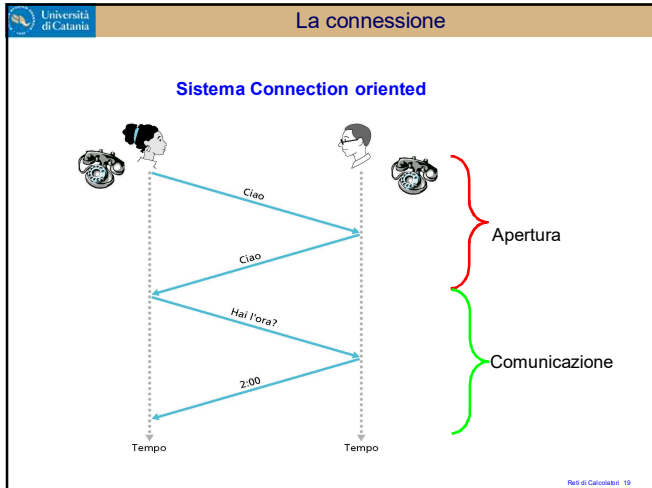
La comunicazione

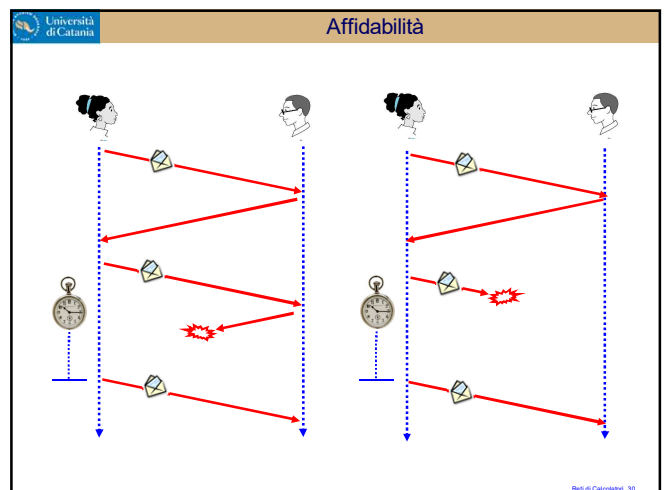
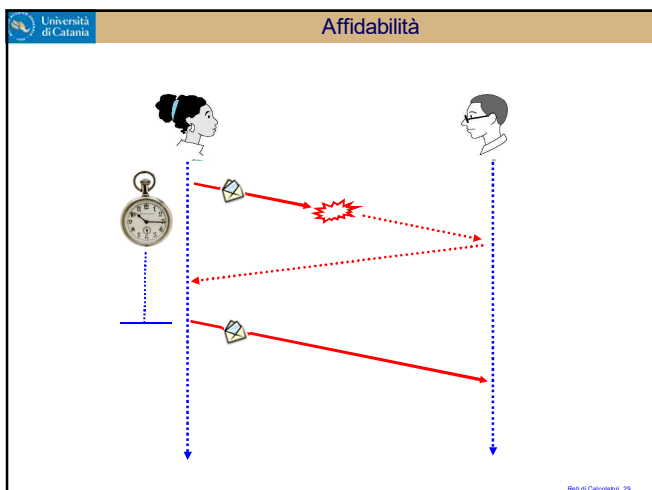
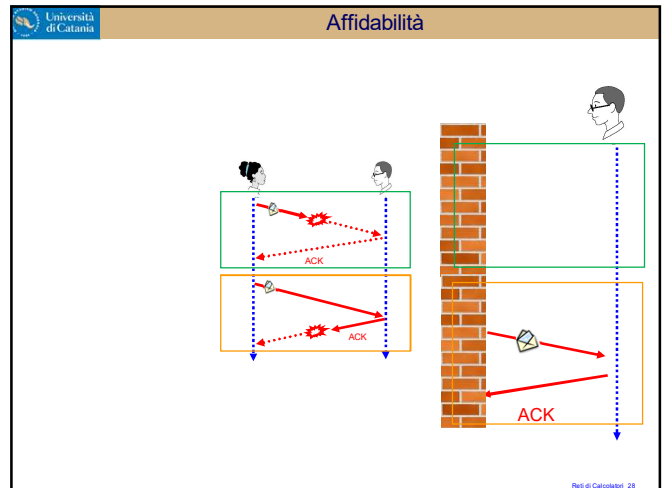
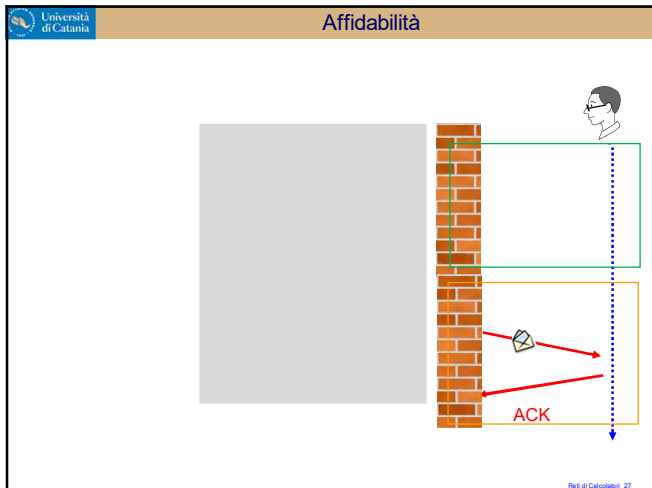
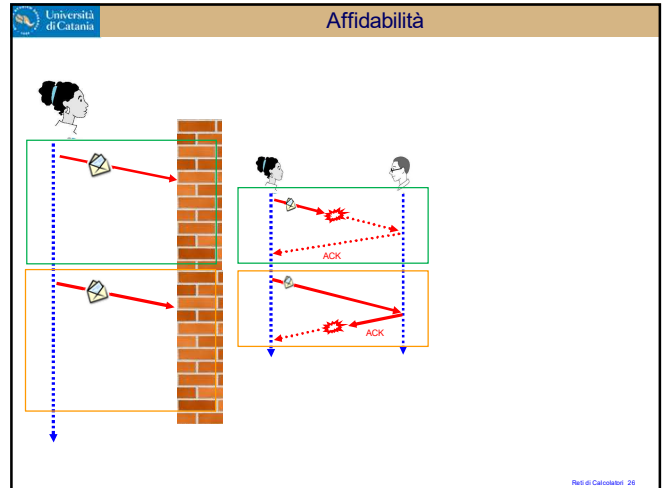
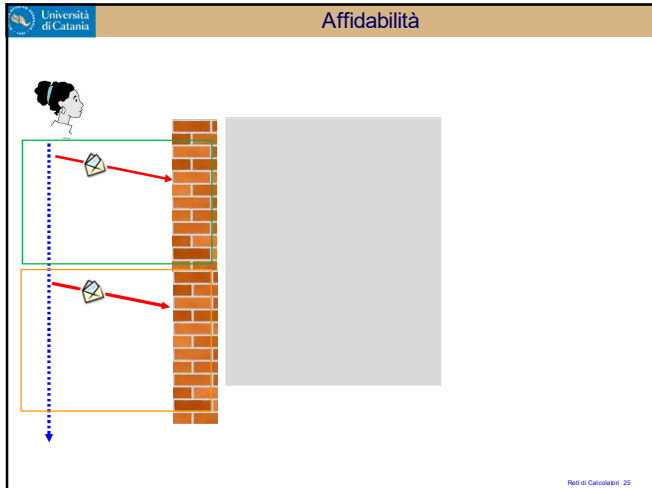
Connectionless ⇔ Connection oriented

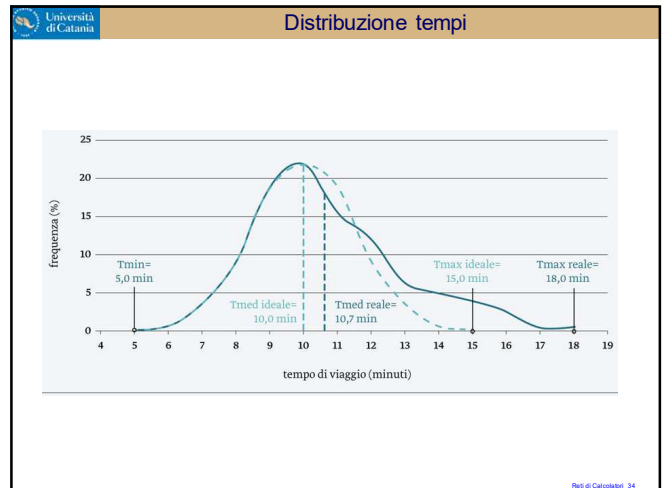
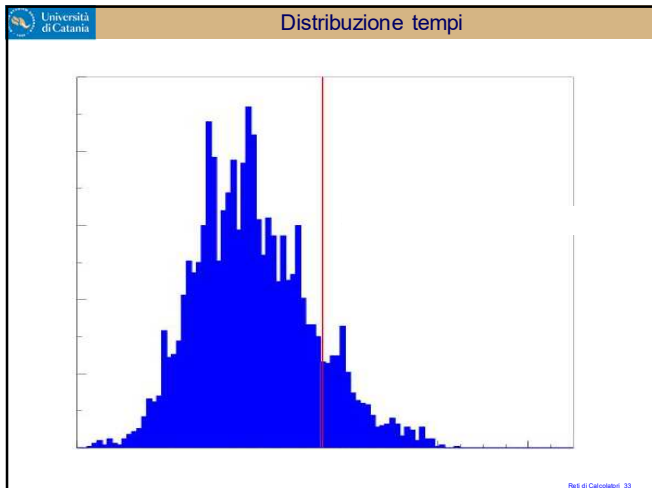
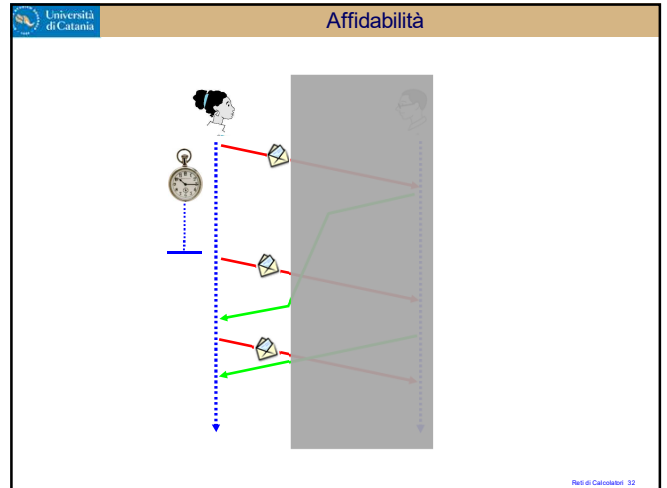
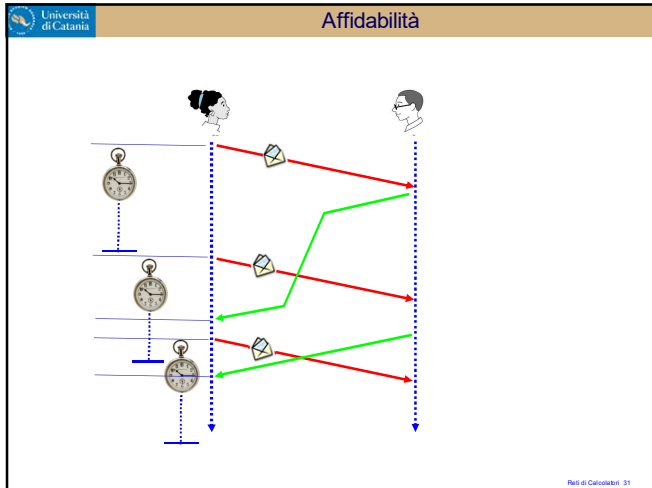
Affidabile ⇔ Non affidabile

Ref: di Calabrese 15







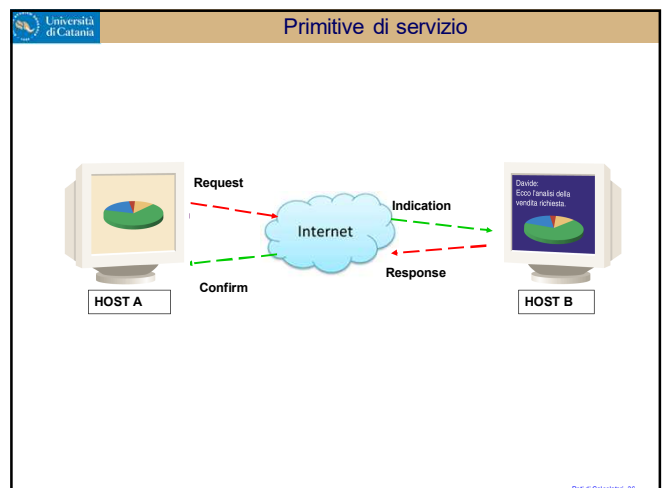


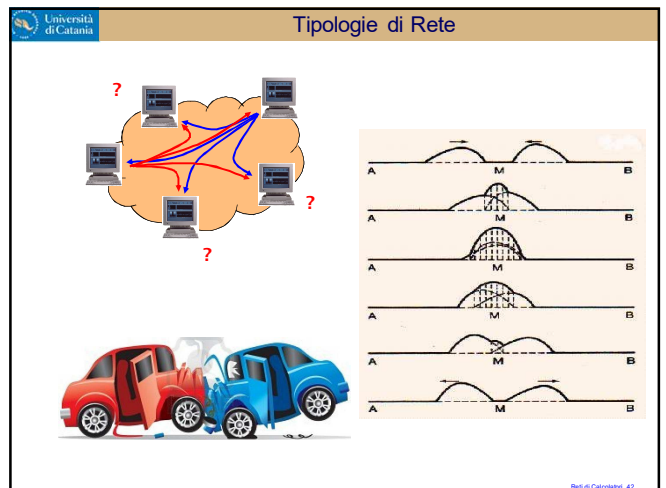
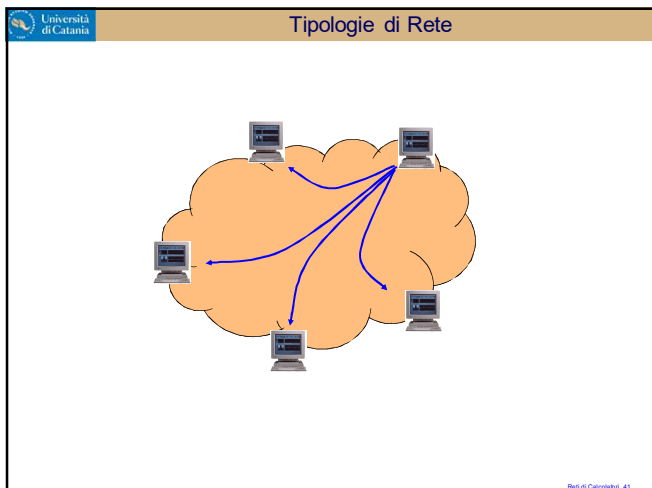
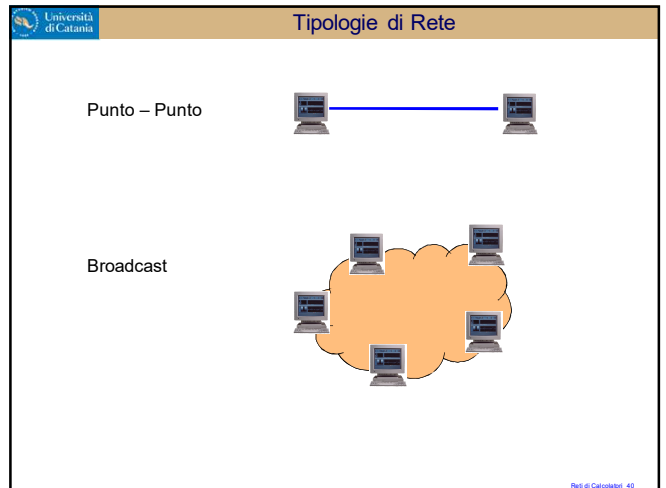
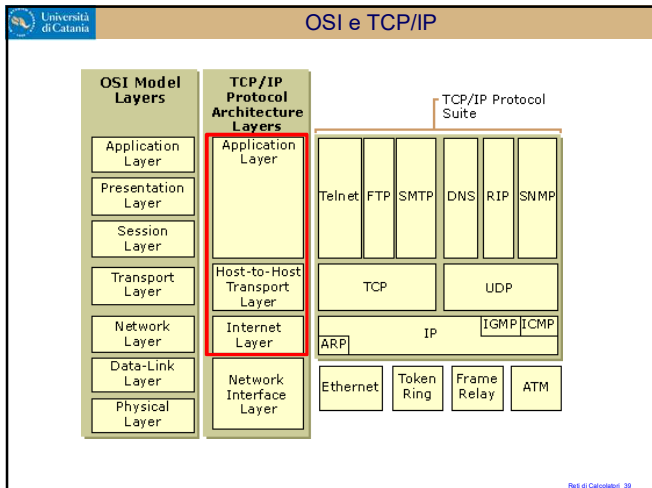
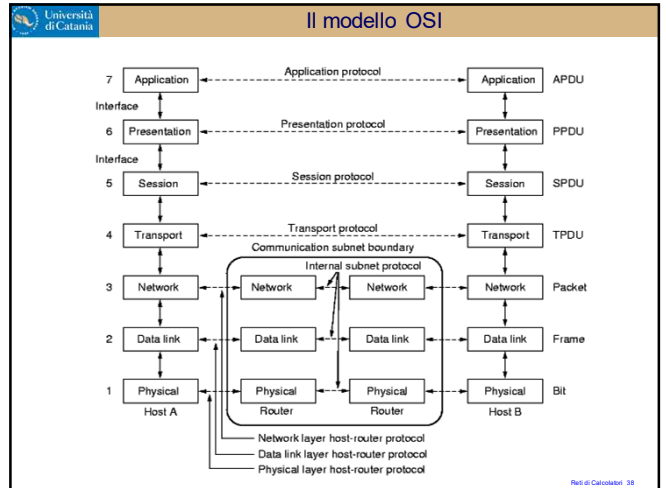
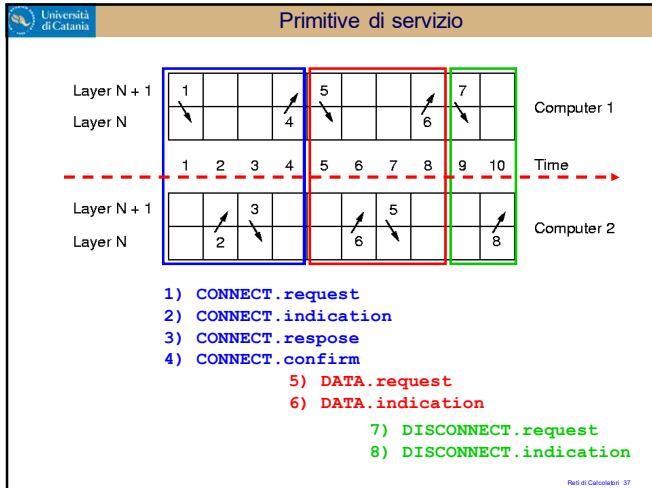
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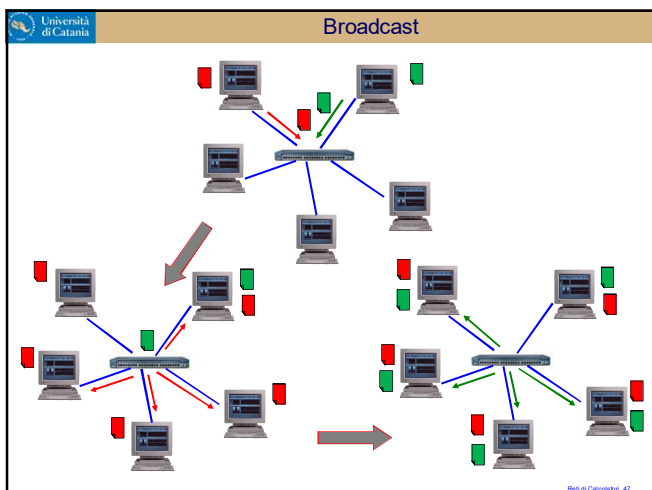
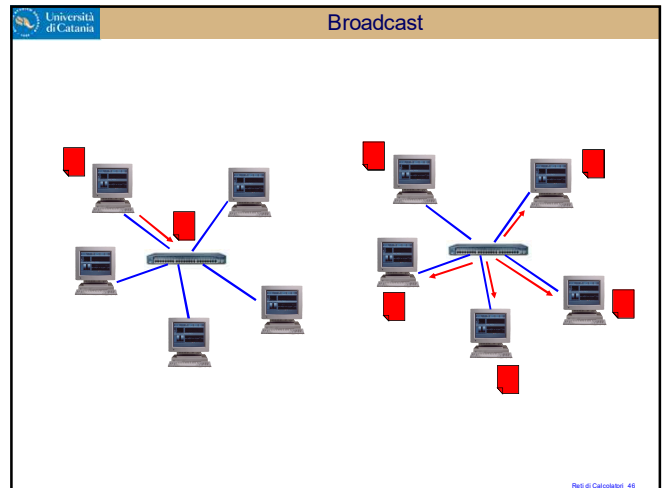
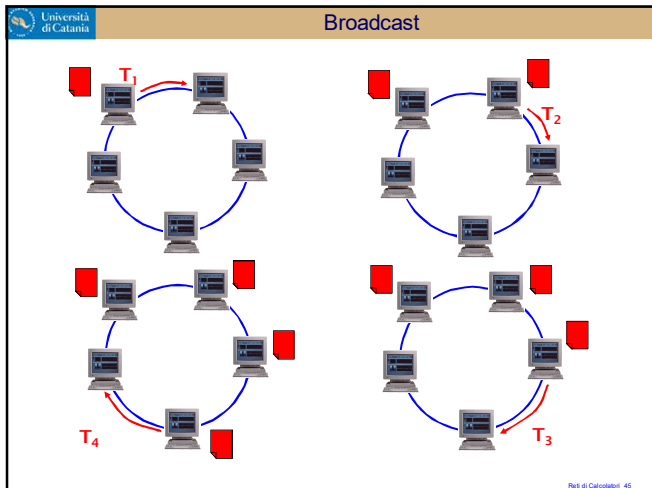
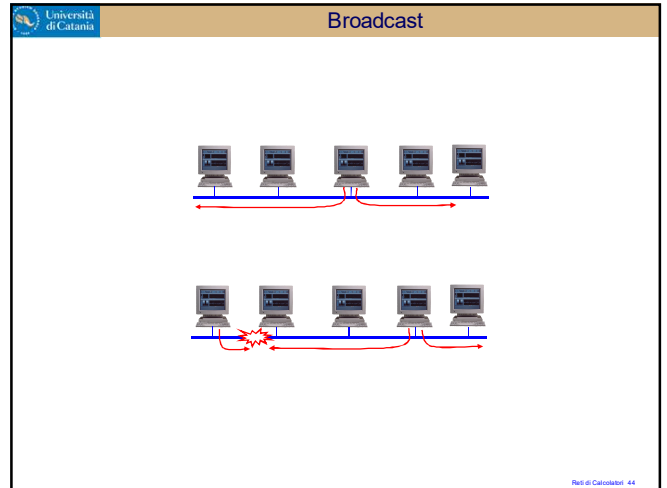
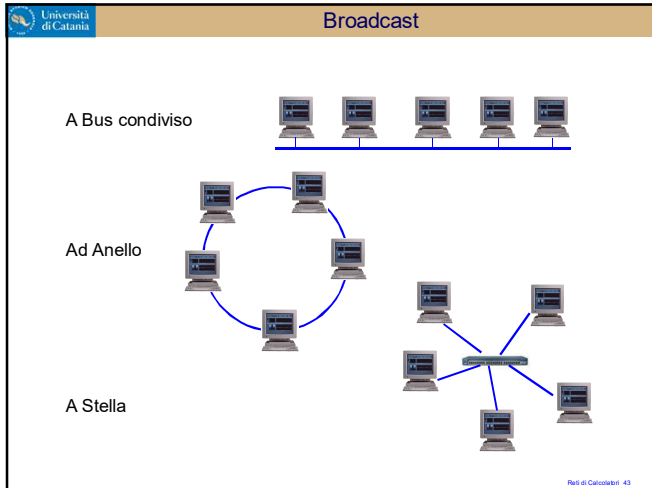
Tipi di Servizi

	Service	Example
Connection-oriented	Reliable message stream	Sequence of pages
	Reliable byte stream	Remote login
	Unreliable connection	Digitized voice
Connection-less	Unreliable datagram	Electronic junk mail
	Acknowledged datagram	Registered mail
	Request-reply	Database query

Reti di Calcolatori 35







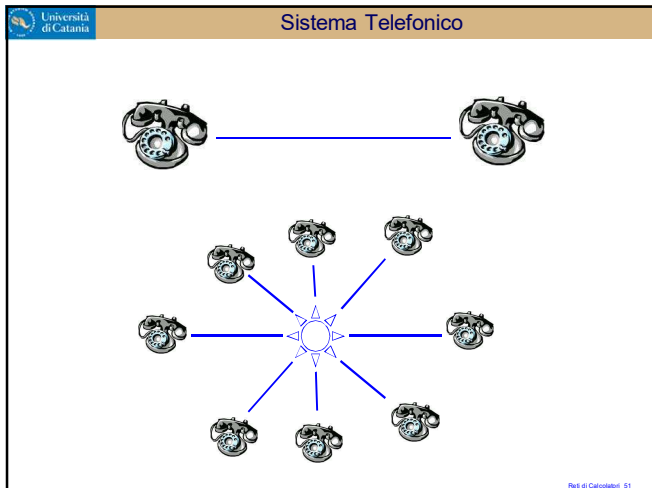
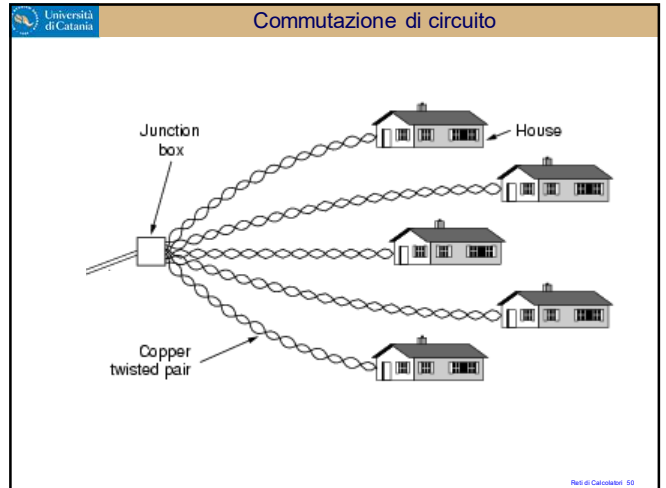
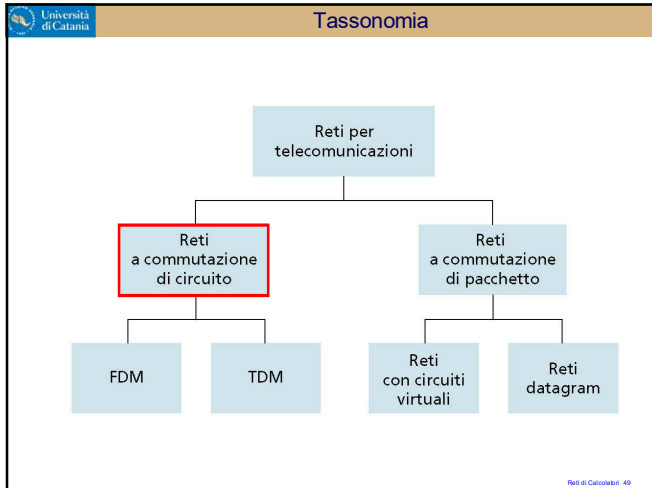
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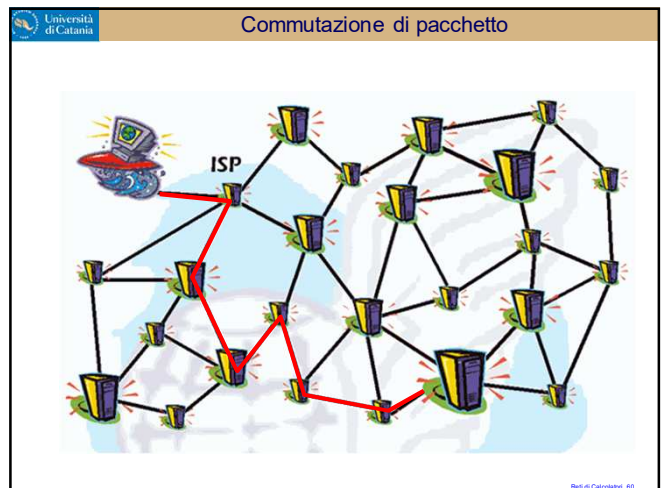
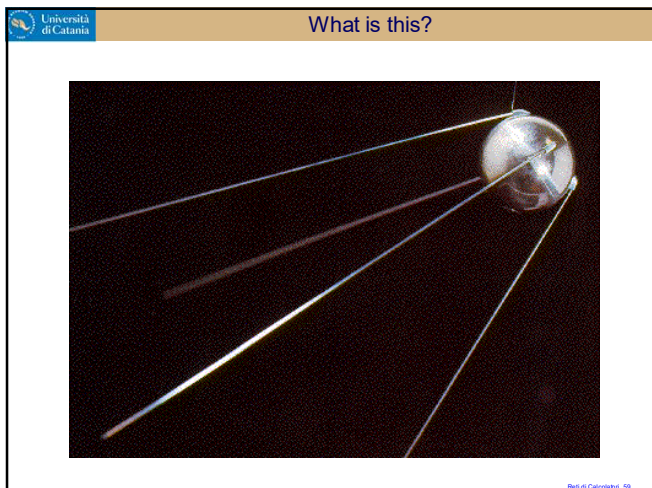
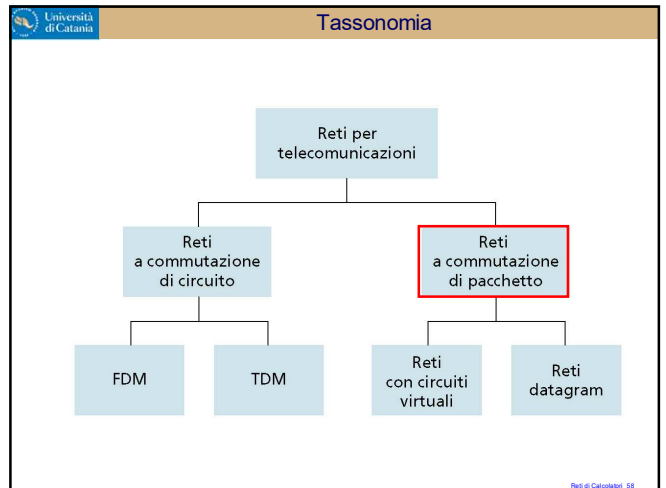
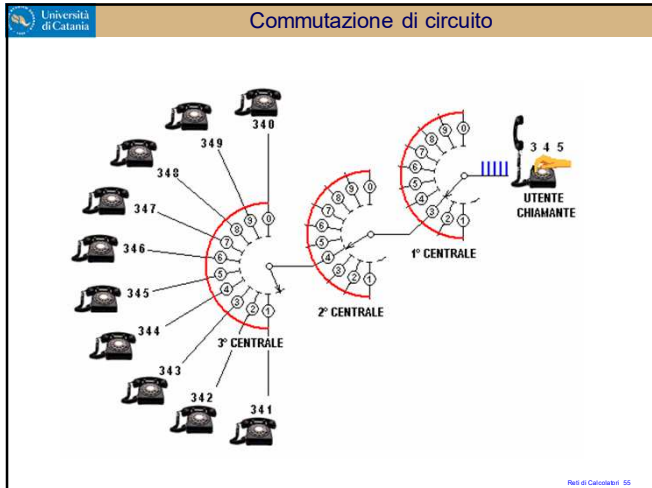
Tassonomia

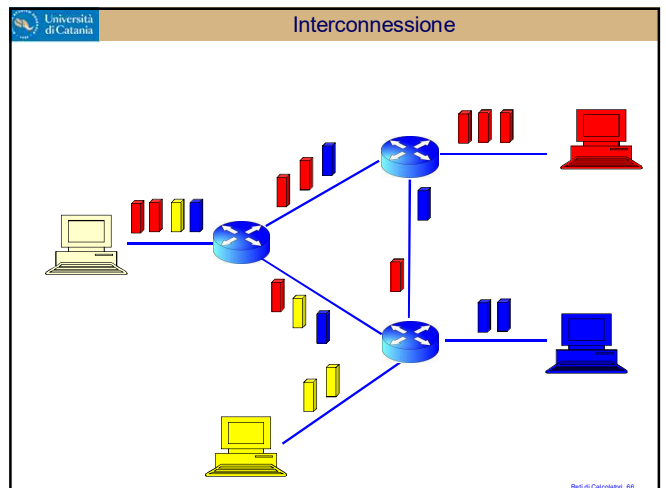
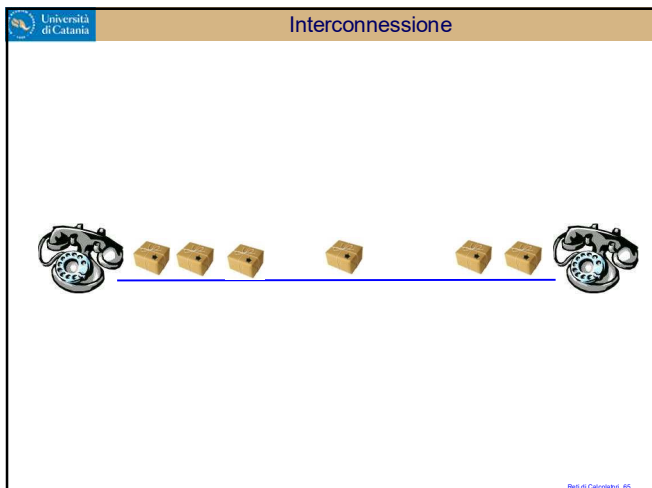
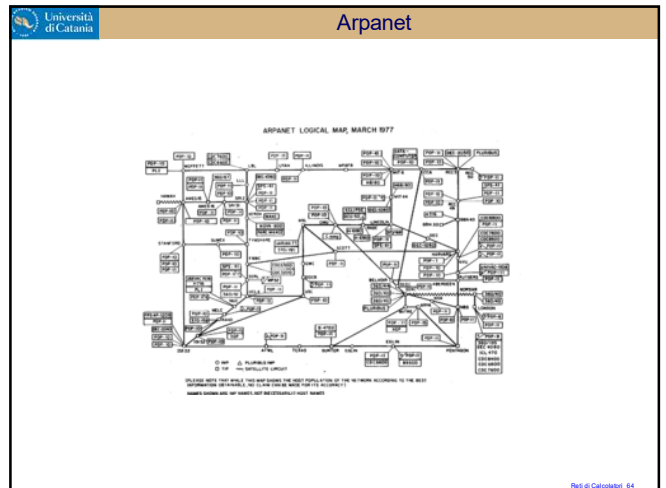
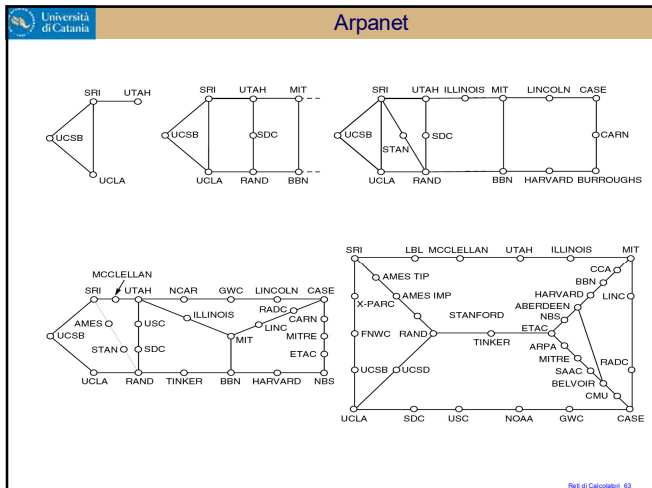
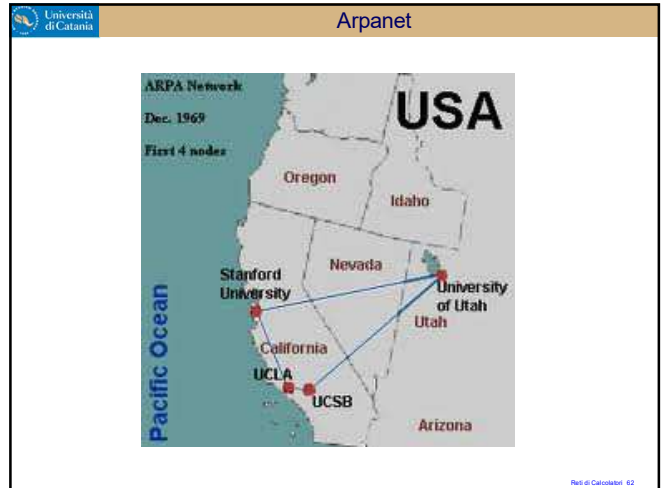
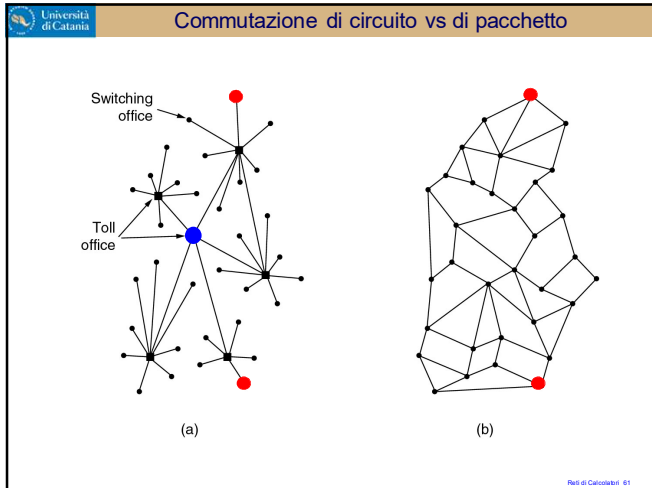
Interprocessor distance	Processors located in same	Example
1 m	Square meter	Personal area network
10 m	Room	Local area network
100 m	Building	
1 km	Campus	
10 km	City	Metropolitan area network
100 km	Country	Wide area network
1000 km	Continent	
10,000 km	Planet	

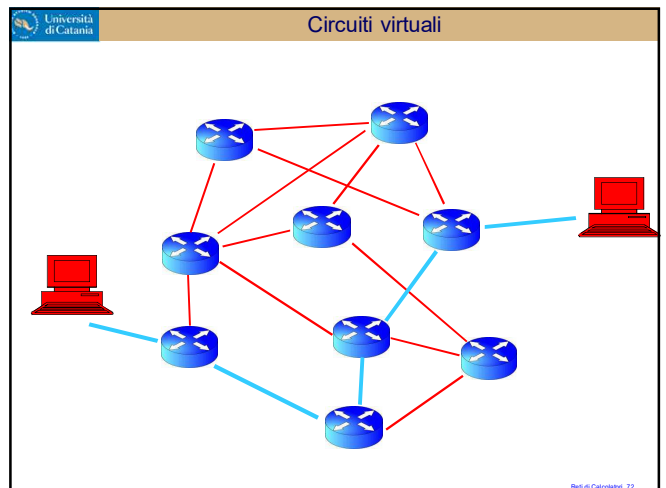
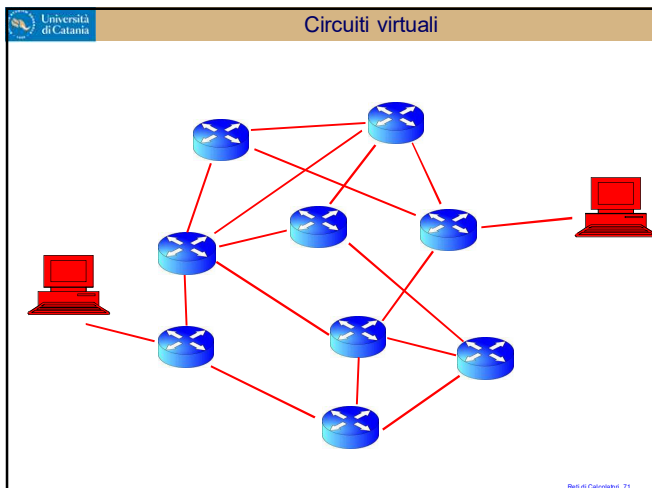
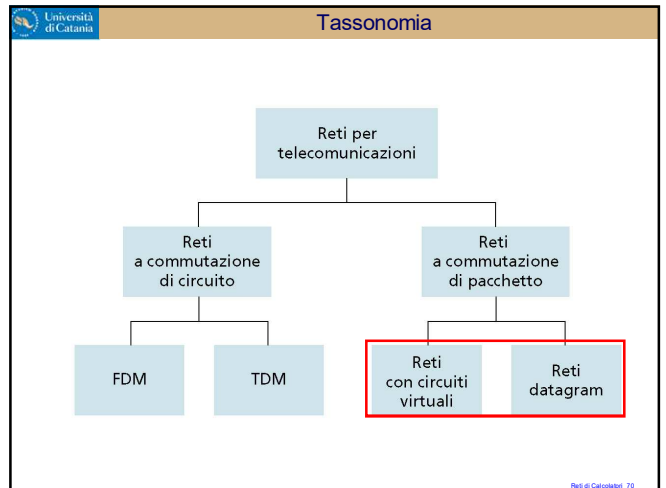
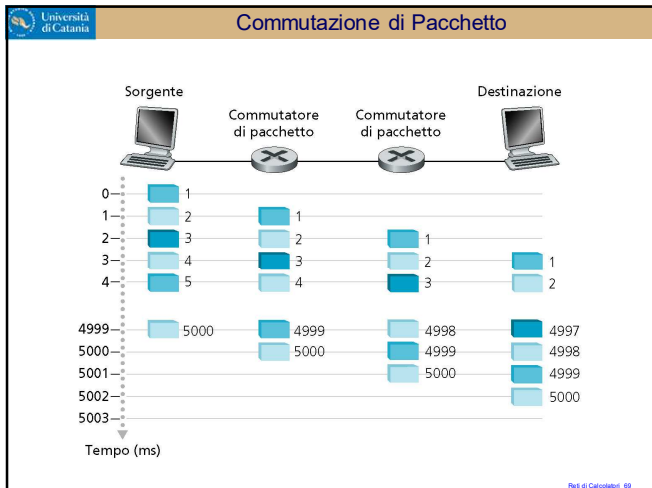
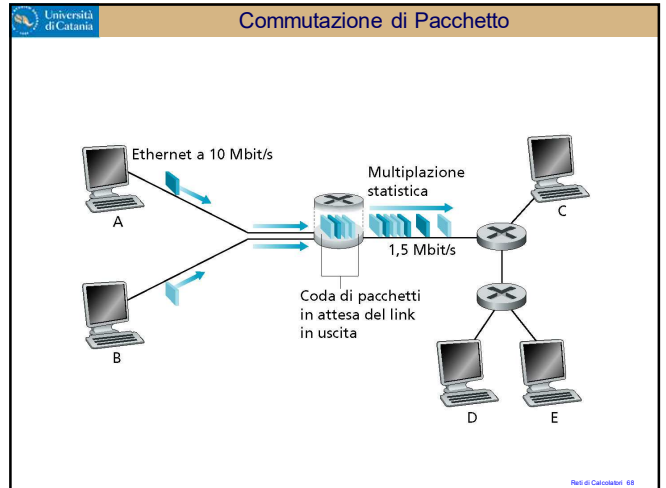
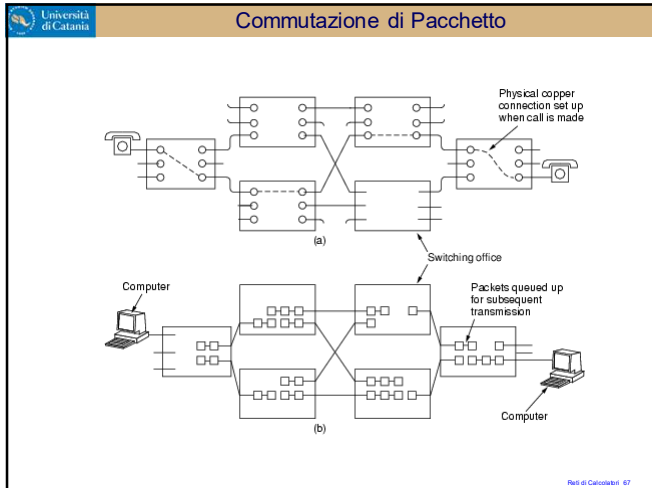
The Internet

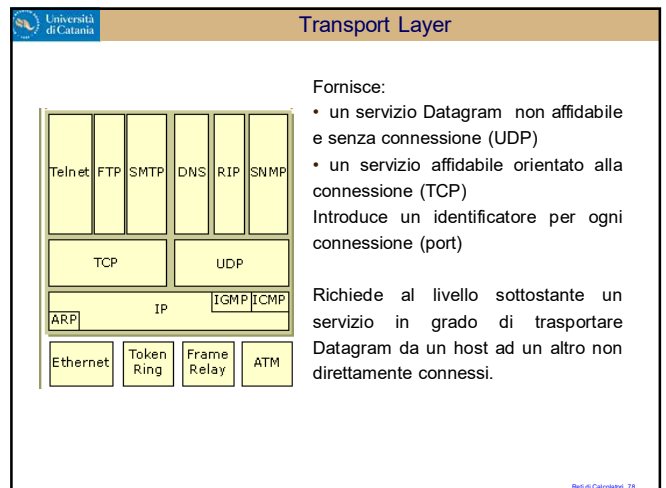
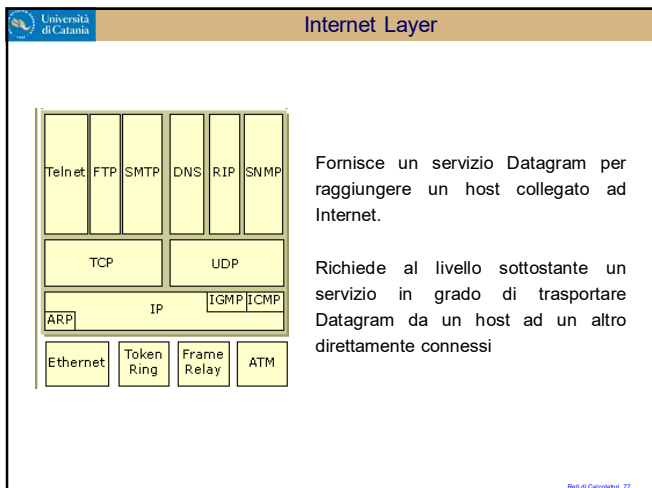
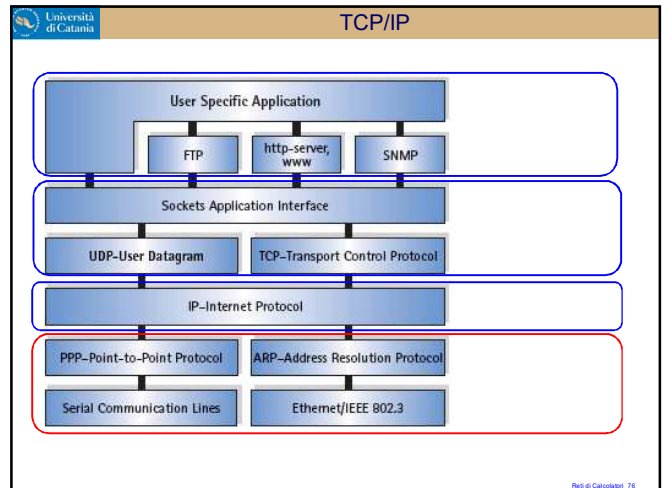
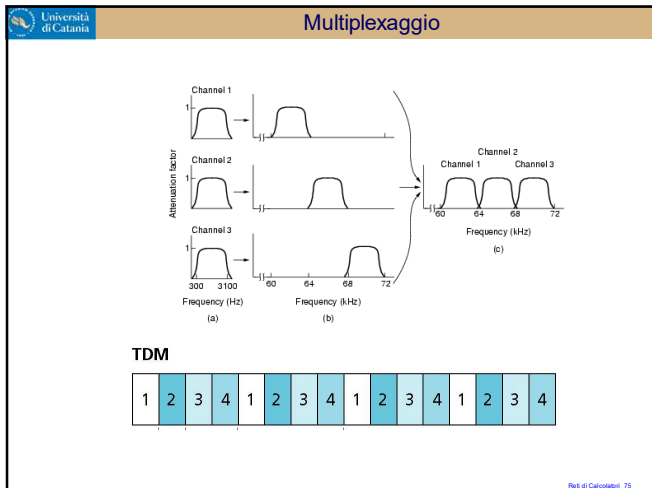
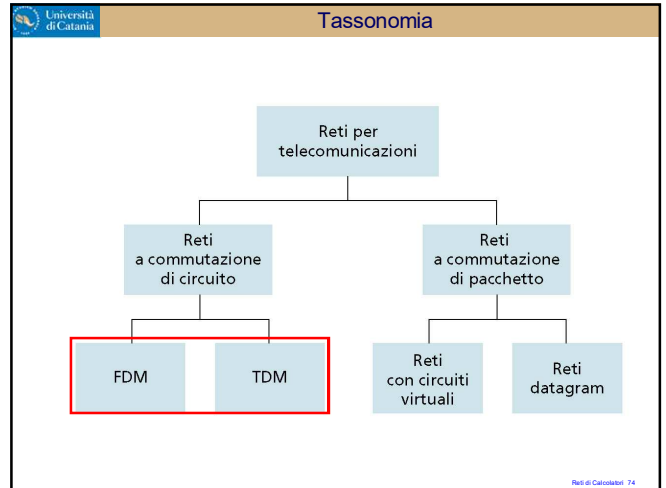
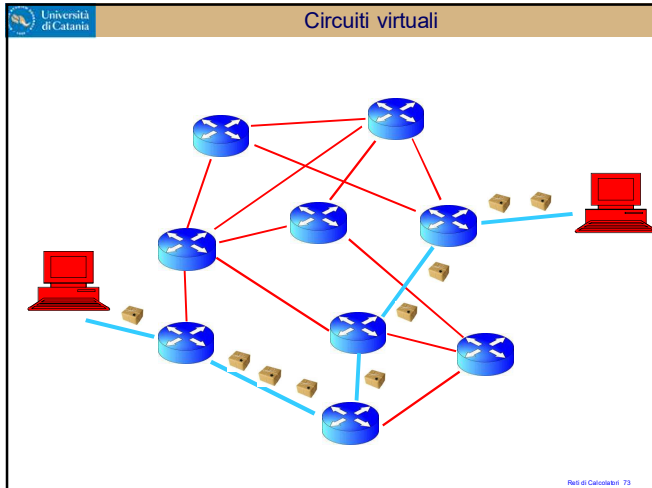
Reti di Calcolatori 48



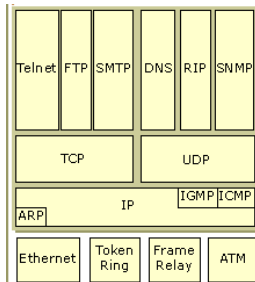








Application Layer



Si interfaccia direttamente con l'utente.

Richiede al livello sottostante un servizio di connessione.

L'affidabilità può essere richiesta ai livelli sottostanti o implementata localmente.

TCP/IP

