ERICSSON

Quiz#1 - Answers

INSE 7110 – Winter 2004
Value Added Services Engineering in Next Generation Networks

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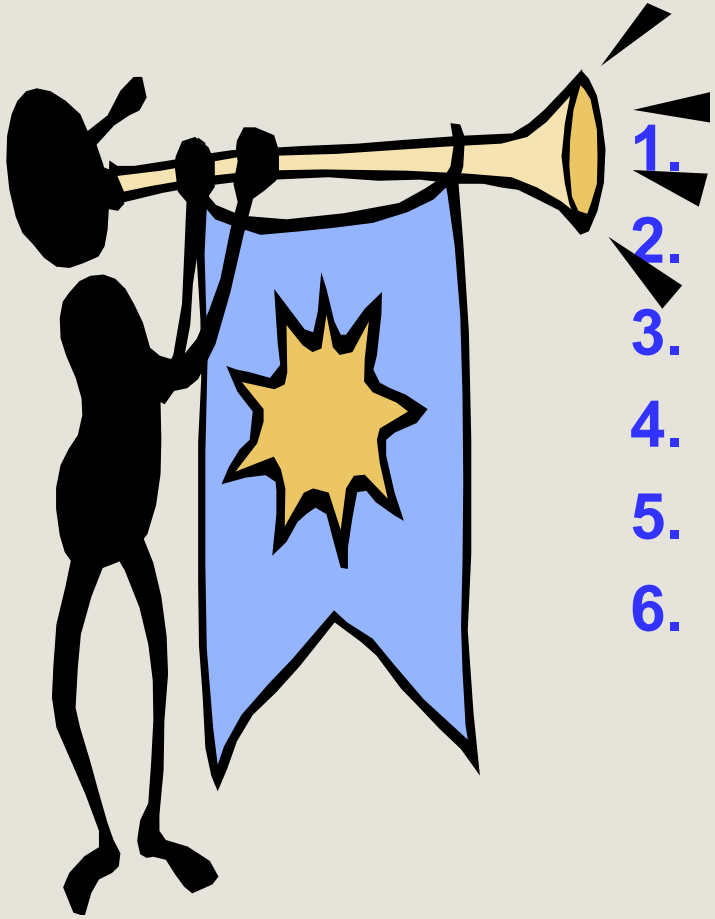
Outline



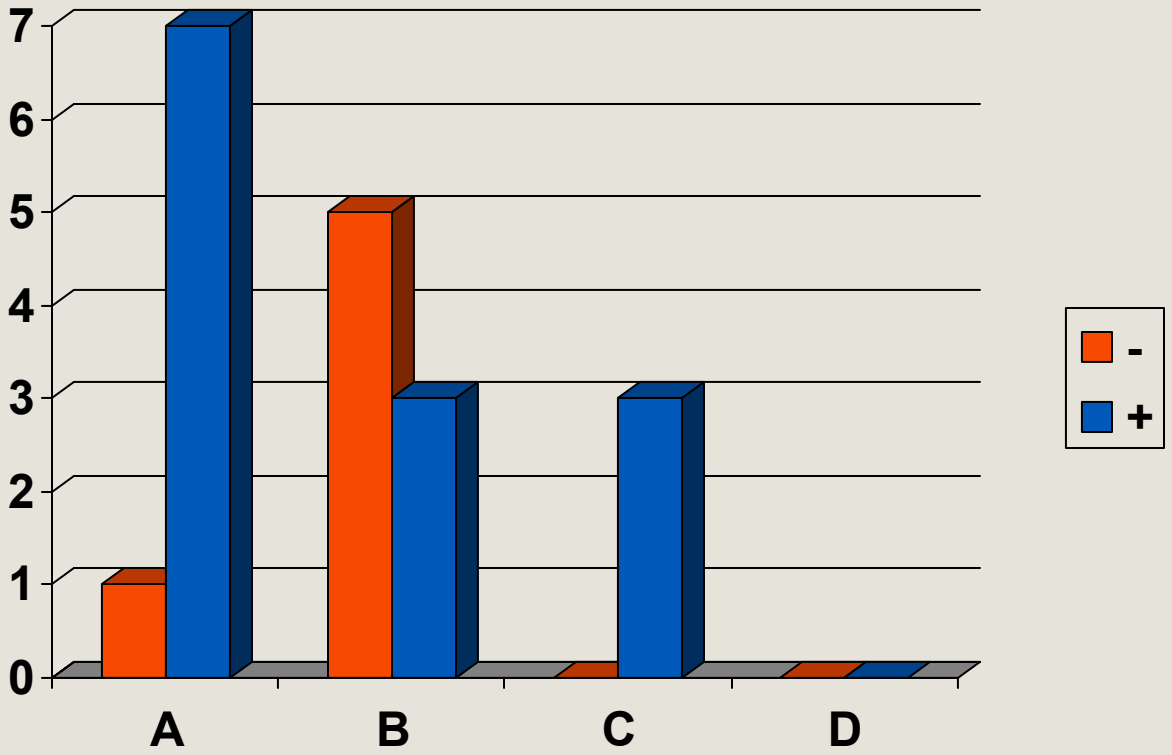
1. General comments
2. Question 1
3. Question 2
4. Question 3
5. Question 4
6. Question 5

Statistics …

Range	Grade	
23 to 25	A+	
19 to 22	A-	
16 to 18	B+	
13 to 15	B-	
10 to 12	C+	
7 to 9	C-	
1 to 7	D	

Statistics …

Number of copies: 18



Low/average level of complexity and generous grading scheme

Limited scope:

- First 4 lectures:
  - Intelligent Networks
  - WAP and TINA
  - SIP
  - H.323, Megaco and soft-switches

Answers in

- Professor's lectures notes
- Students' own notes

Everything asked during the quiz was discussed during the lectures

Grading scheme: Half point sometimes given to guessed / approximative answers

Question 1

Answers in professor's lecture notes and suggested readings

Note:

Physical plane does not correspond to mapping onto hardware, physical links and so on …It corresponds to grouping in nodes and protocols between the nodes

Generous grading scheme

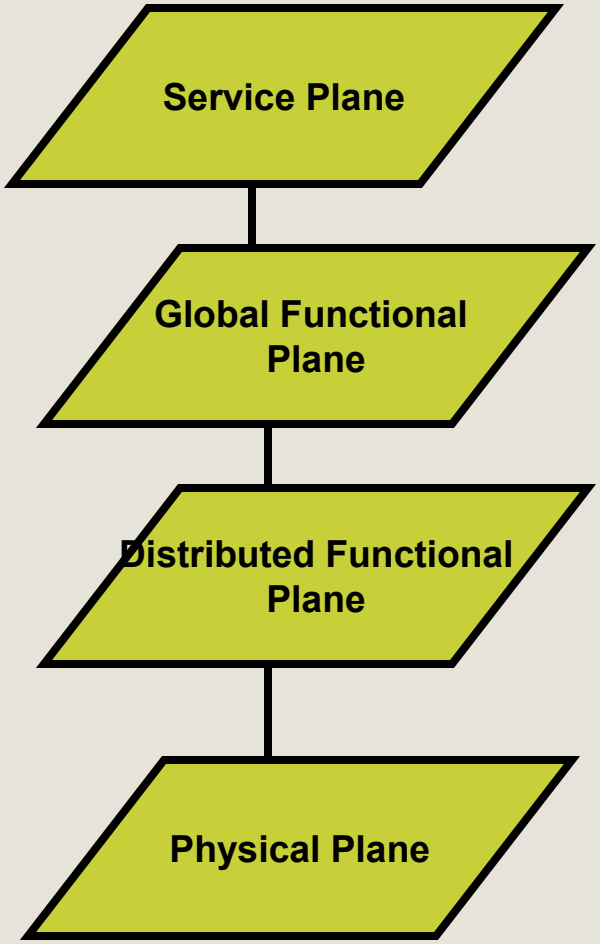
0.5 for answers mentioning hardware, physical links

IN: Fundamental Principles

1. **Separation of switching software and service logic**
   - Main implication: Need for an interaction model between switching and service
     - Functional entities / nodes
     - Protocols

2. **Standardization of capabilities for building services**
   - Main implication: Need for “components” that can be used in various ways for building services

IN: A four planes conceptual architecture



Services as seen by end-users

Functionality required to build the services (e.g. Service independent building blocks)

Functional entities that make the IN network

Physical nodes

Question 2

Answers in student's lecture notes and suggested readings

Note:

- **Extensive discussions in week 3**
  - Slides shown
  - Suggested reading shown in read and suggested as mandatory reading

Generous grading scheme

- **1 point given to the classical answer "TCP slows down instead of speeding up …"**
- **2 points given for any couple of answers to the question on the two main groups of solutions (even if they belong to the same group)**

WAP

K. Pentikousis, TCP in Wired-Cum-Wireless Environments, IEEE Communications Surveys, 4Q2000

http://www.comsoc.org/livepubs/surveys/index.html

- **Examples of factors that TCP unsuitable in wireless environment**

  Any pair of the following:

  - Limited bandwidth
  - Long round trip times
  - Random losses
  - User mobility
  - Short flows

- **Solution adopted by WAP 1.x**

  Proprietary protocol

- **Two main groups of solutions used in wireless profile of TCP**

  1. Link layer solutions
  2. TCP modifications

Question 3

Answers in professor's lecture notes and suggested readings

Generous grading scheme

1 point given to answers that do not make the difference between end user and subscriber

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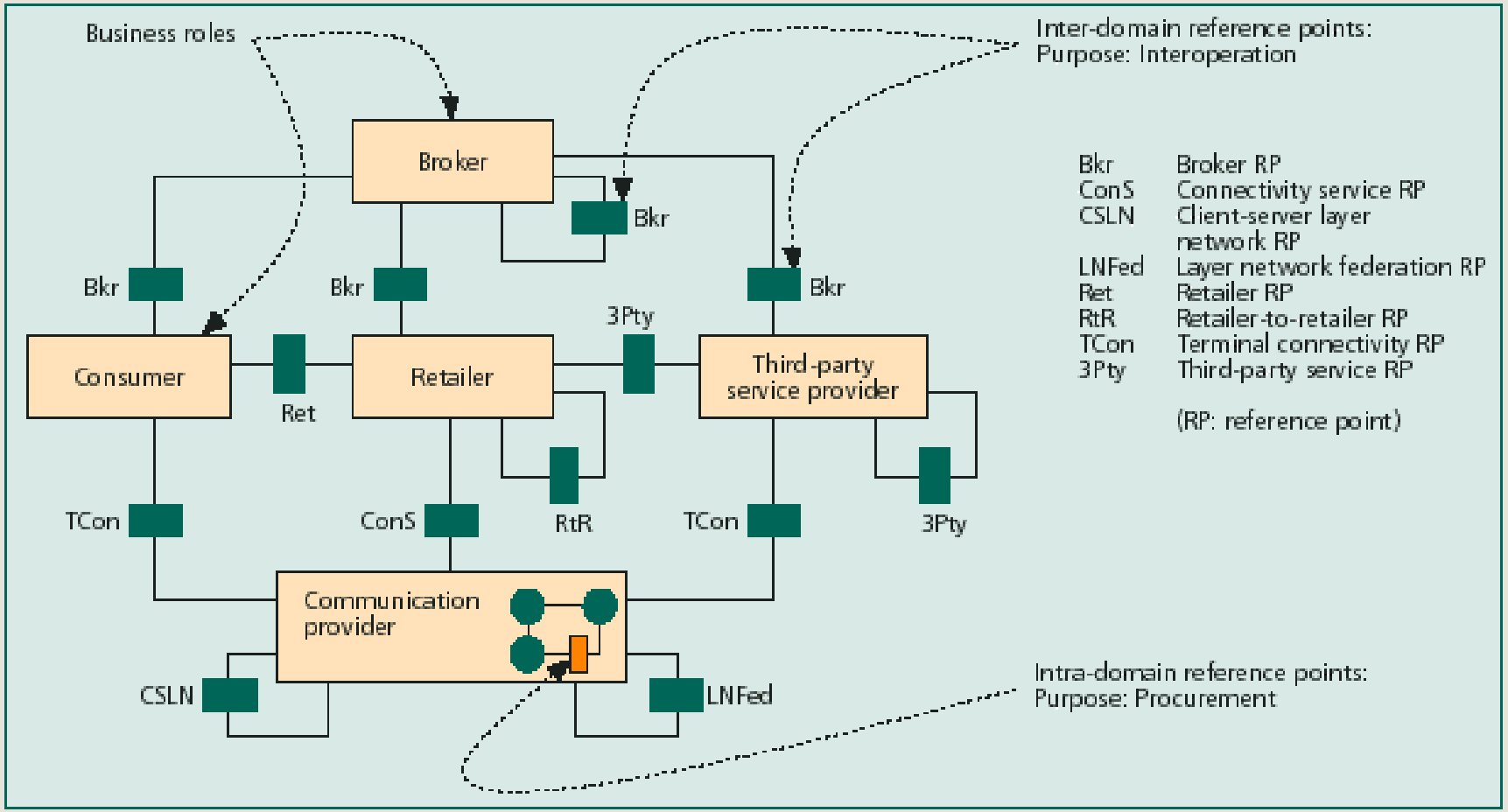
TINA: Fundamental principles

Business roles / interfaces



Note: Taken from IEEE Communications Surveys & Tutorials (Reference [x])

TINA: Fundamental principles

Roles

- **Consumer**
  - End-user: Actual user of the service
  - Subscriber: Entity having the business agreement for service usage
- **Retailer**
  - One stop shop
  - Entity which provides the services and which has the business agreement with the subscriber
  - Can provide own services or services subcontracted from third parties
- **Third party service provider**
  - Has business agreement with retailer and no direct business agreement with subscribers
- **Communication/connectivity provider:** “Pipe” provider
- **Broker:** Ensure fair information distribution to all parties

Question 4

Answers in professor's lecture notes and suggested readings

- INVITE, BYE, OK (1 point)
- REFER-TO, NOTIFY, INVITE, OK, ACK, BYE (3 points)
- INFO (1 point)

Generous grading scheme

0.5 point for subscribe / notify instead of info

Event Notification

An example of use: REFER Method

- Recipient should contact a third party using the URI provided in the CONTACT field
  - Call transfer
  - Third party call control
- Handled as Subscribe / notify
  - REFER request is considered an implicit subscription to REFER event
    - Refer-TO: URI to be contacted
    - Expiry determined by recipient and communicated to sender in the first NOTIFY
    - Recipient needs to inform sender of the success / failure in contacting the third party

INFO Method

Allow the exchange of non signalling related information during a SIP dialog

- Semantic defined at application level
- Mid-call signalling information
  - DTMF digits with SIP phones
- Info carried as
  - Headers and/or
  - Message body

Question 5

Answers in professor's lecture notes and suggested readings

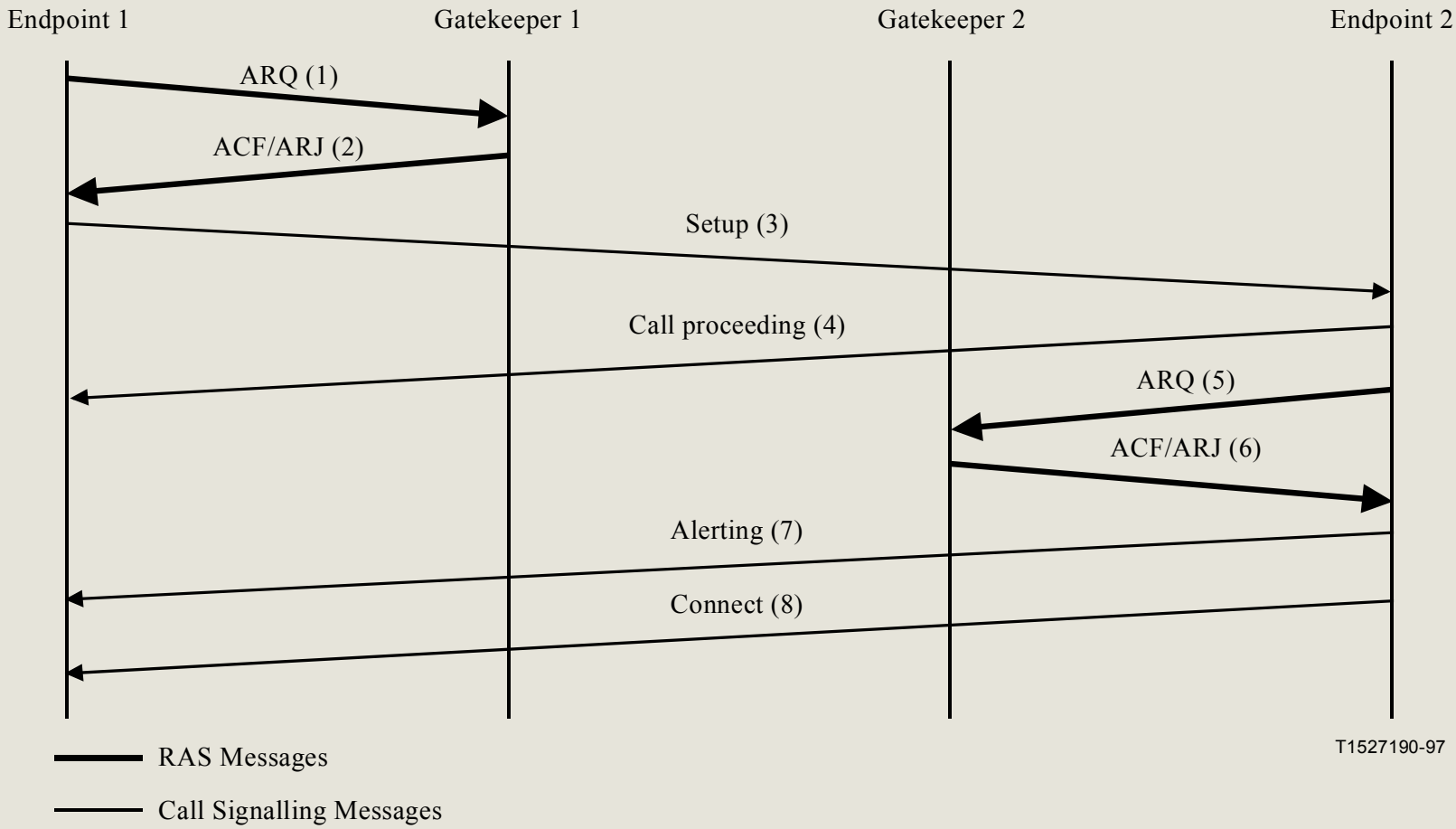
First part

- Admission request (1 point)
- Call set up (1 point)
- Capability negotiation (1 point)
- Logical channel opening (1 point)

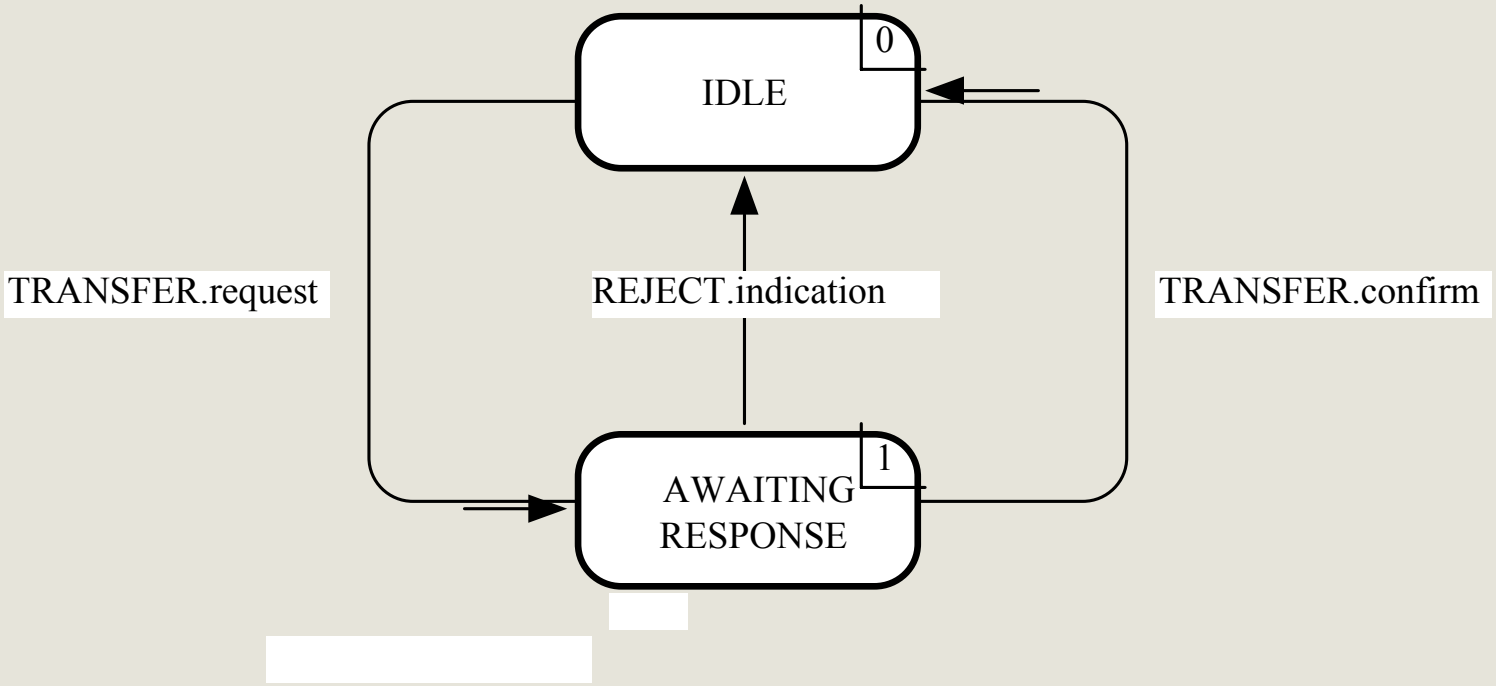
Second part

- Fastconnect (1 point)

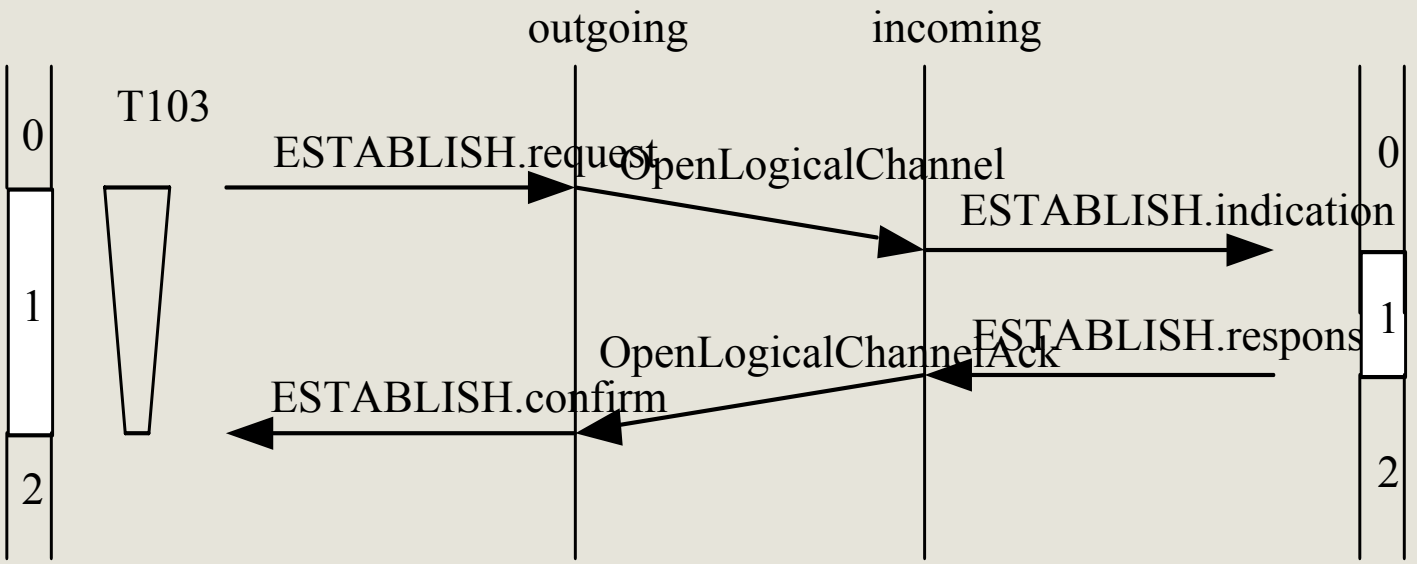
RAS: Call set up - Two gatekeepers …



H.323 signaling: Capabilities exchange



H.323 signaling: Logical channels



H.323 signaling: An important feature - Fast connect

Introduced as an afterthought in H.323

Allow call set up and logical channel set up using a single message

- FASTCONNECT
  - Include as parameter fast start to indicate that logical channel should be opened
  - May be refused by the other end (Fast connect refused)