



CSCI 101

Connecting with Computer Science

Lecture 2: Introduction to WWW I

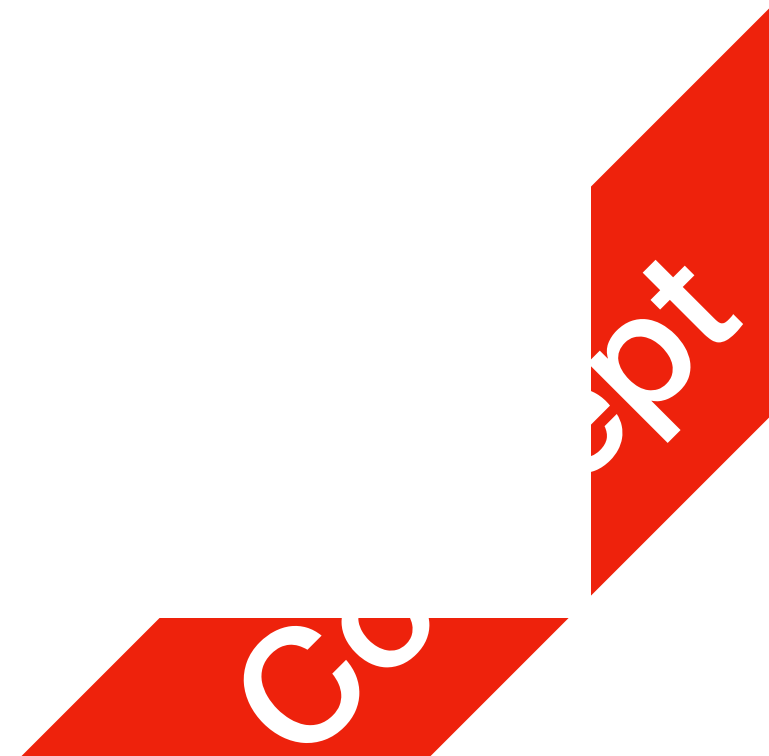


Jetic Gū
2020 Fall Semester (S3)

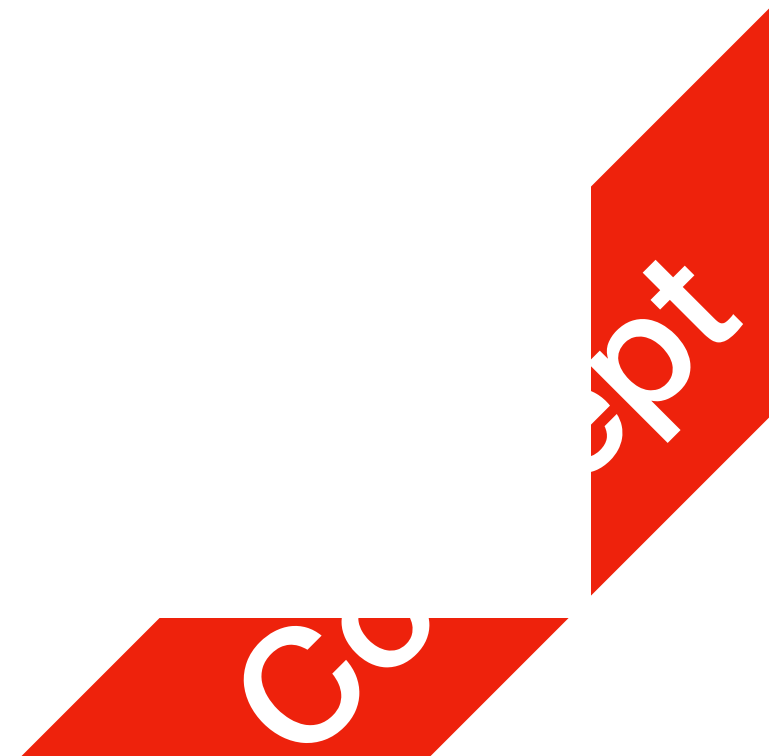
Overview

- Focus: Internet
- Architecture: von Neumann
- Readings: 1
- Core Ideas:
 1. History
 2. Constructions/Infrastructures
 3. Things to Think about

History of the Internet



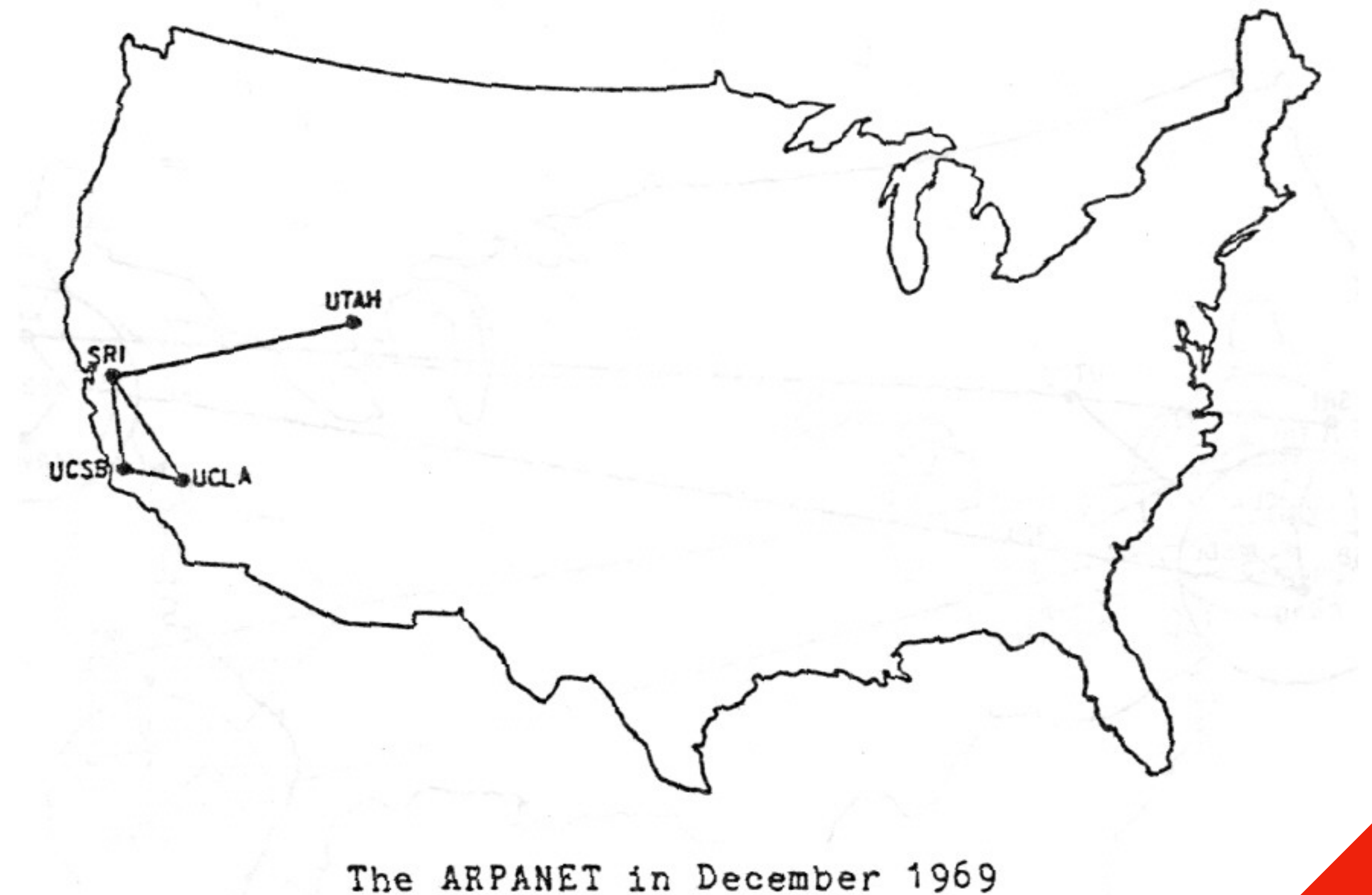
1. <https://www.youtube.com/watch?v=9hIQjrMHTv4>



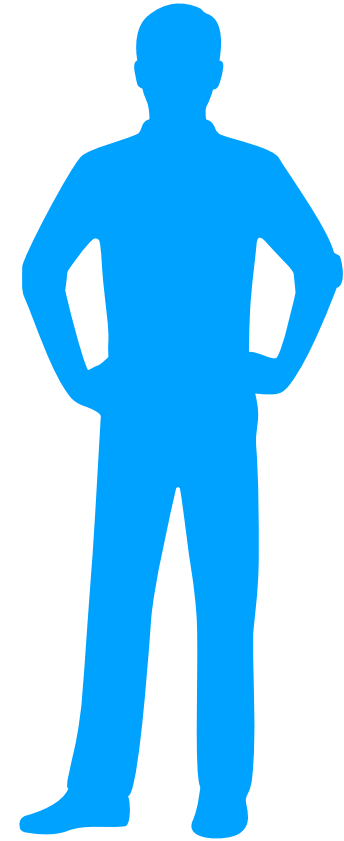
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History

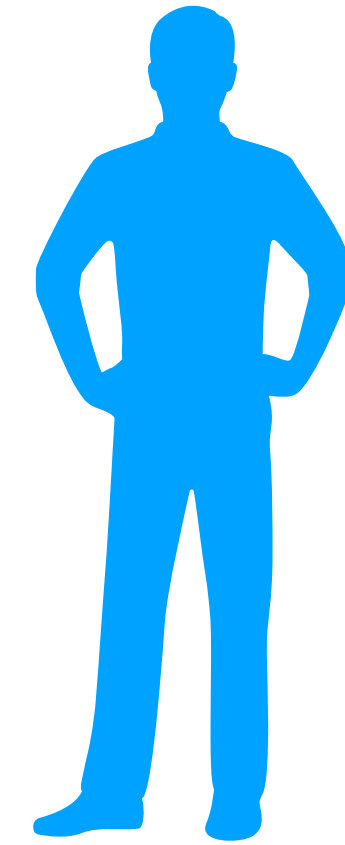
- 1969 ARPANET
 - University of Utah with three research centres in California
 - A prototype to test the concept of **packet switching**



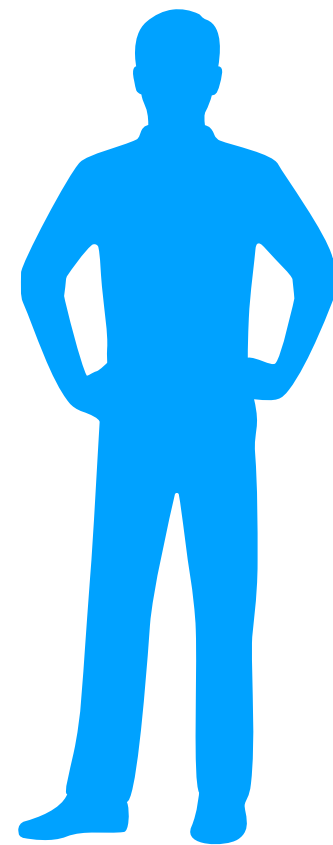
Packet Switching



A



B

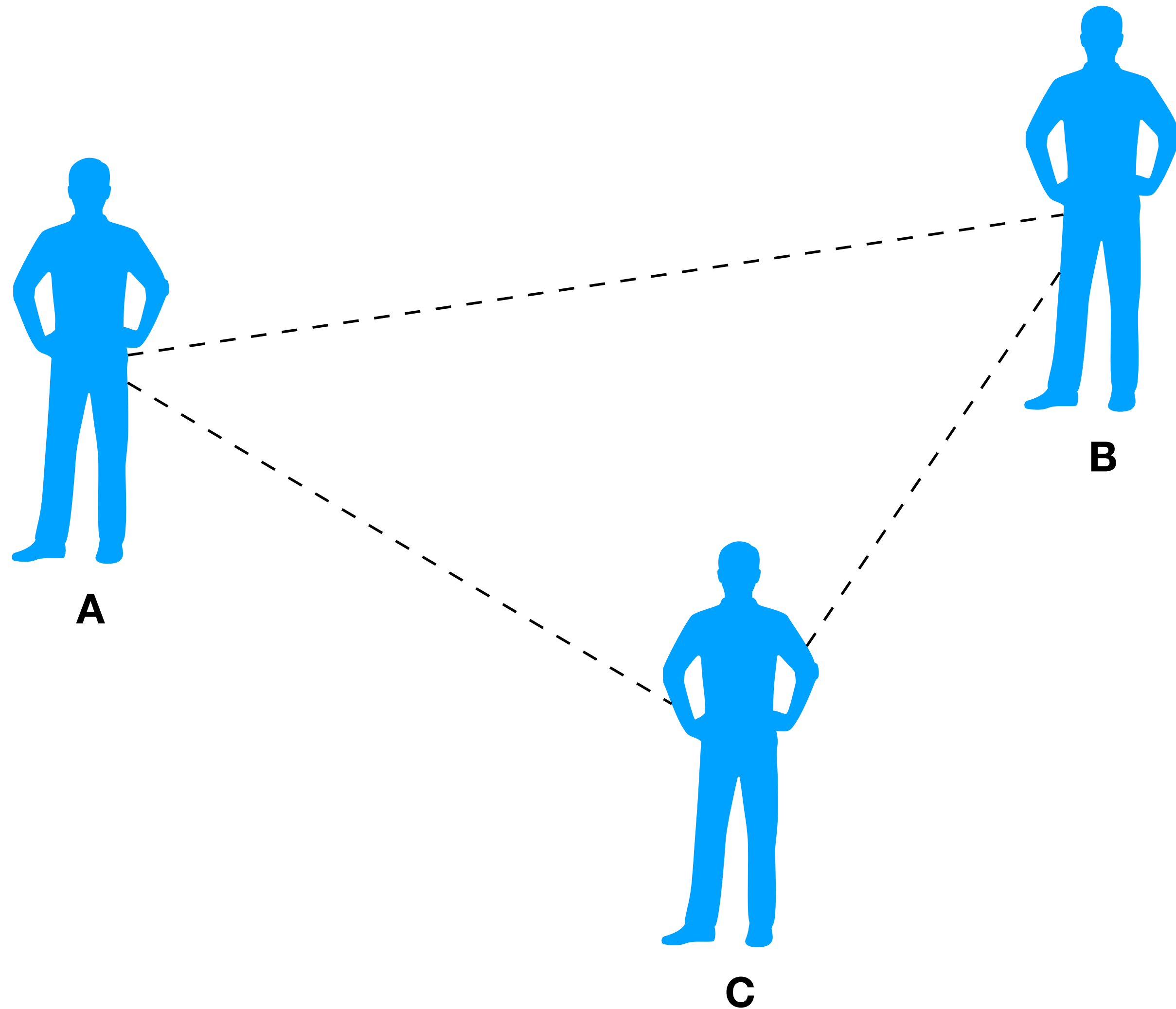


C

Example

Packet Switching

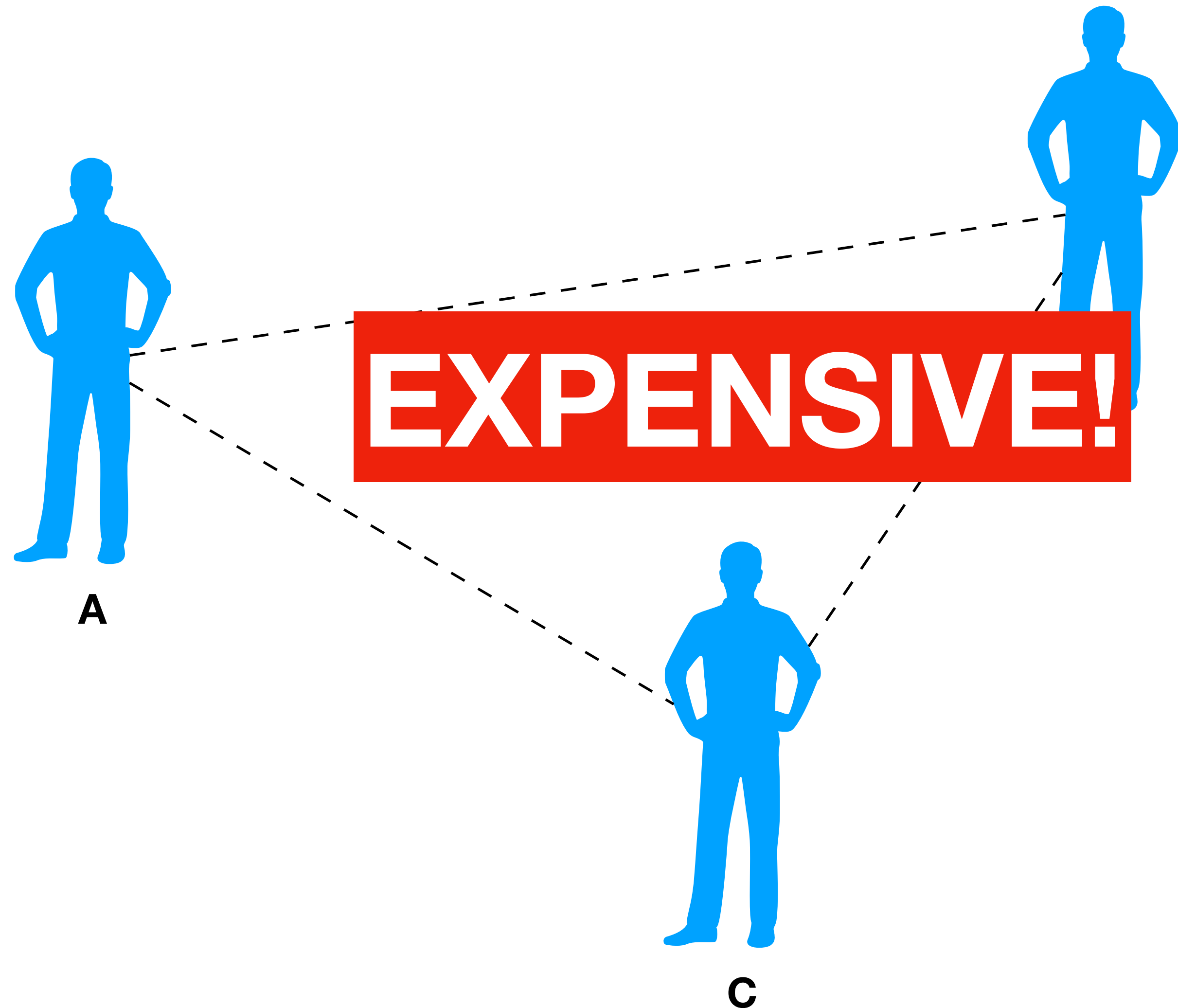
Connections between each pair of people



Example

Packet Switching

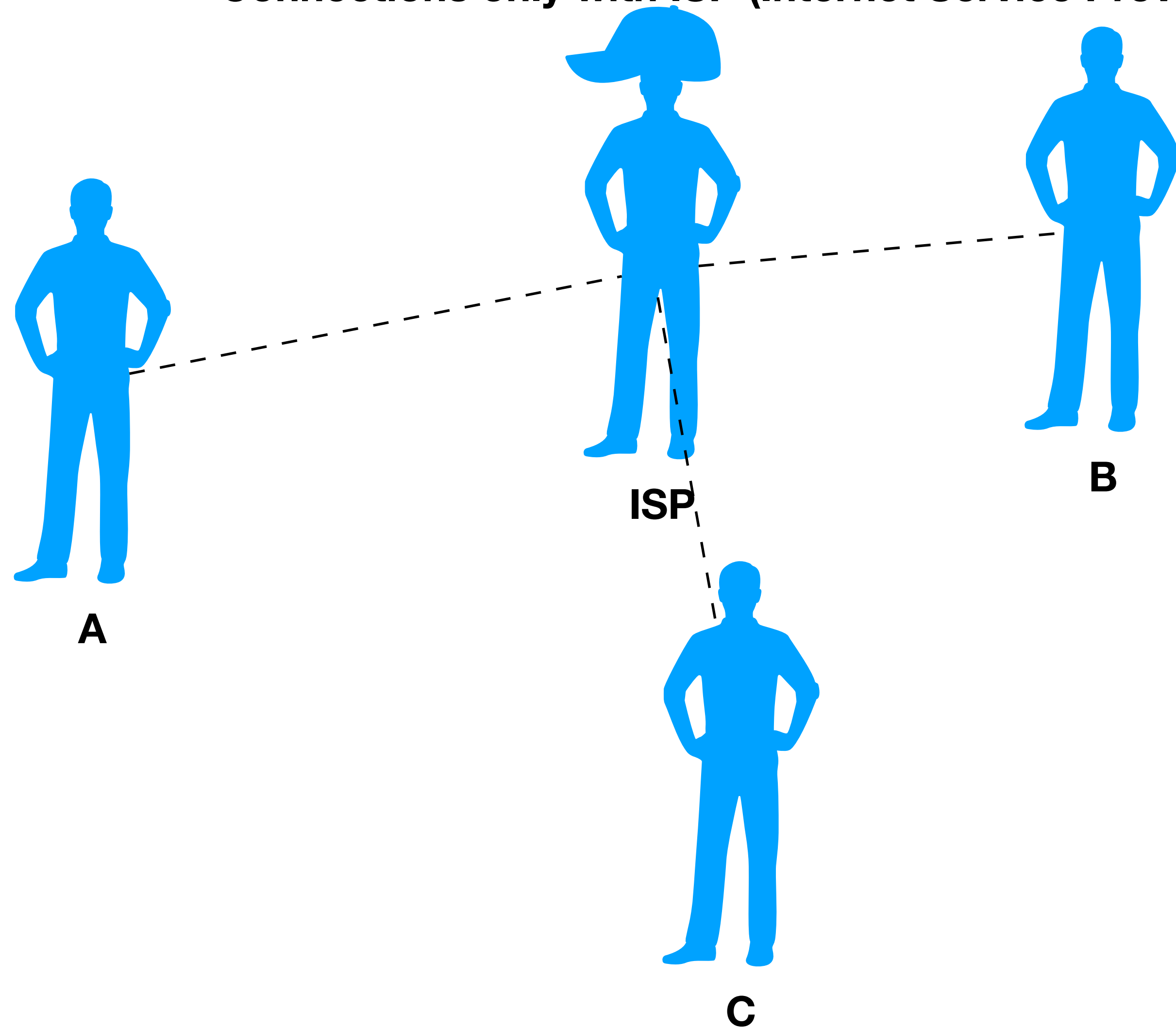
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Example

Packet Switching

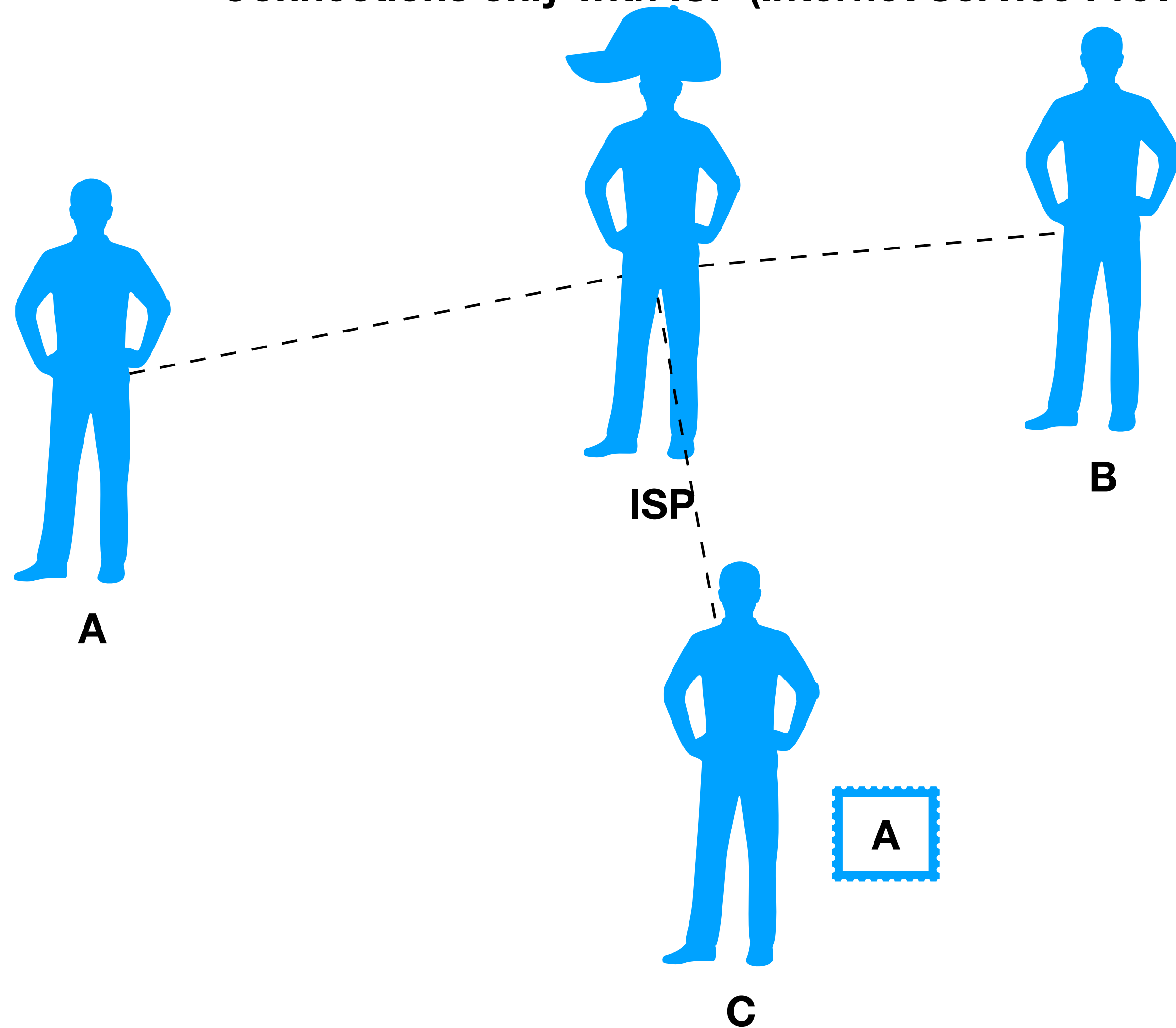
Connections only with ISP (Internet Service Provider)



Example

Packet Switching

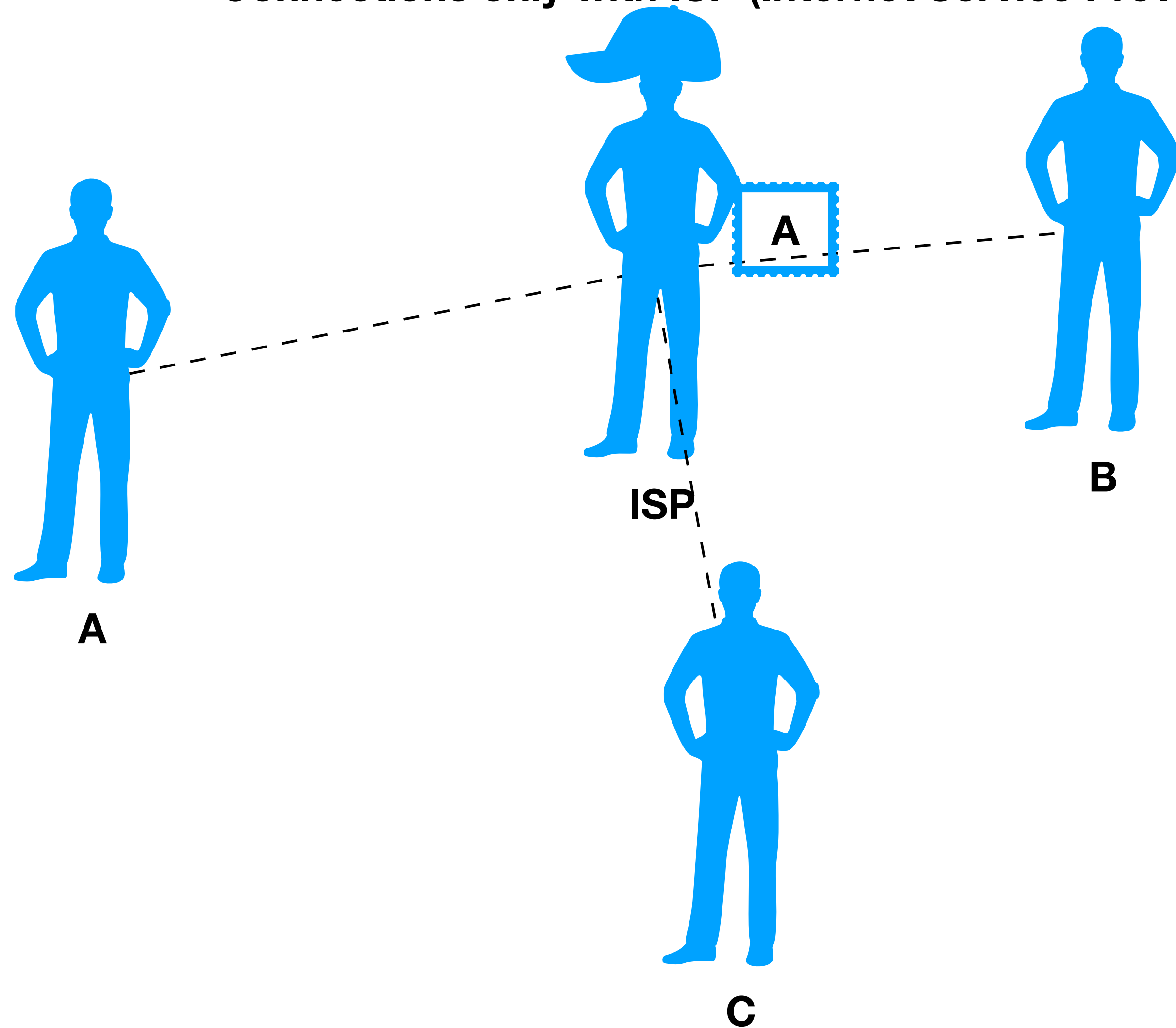
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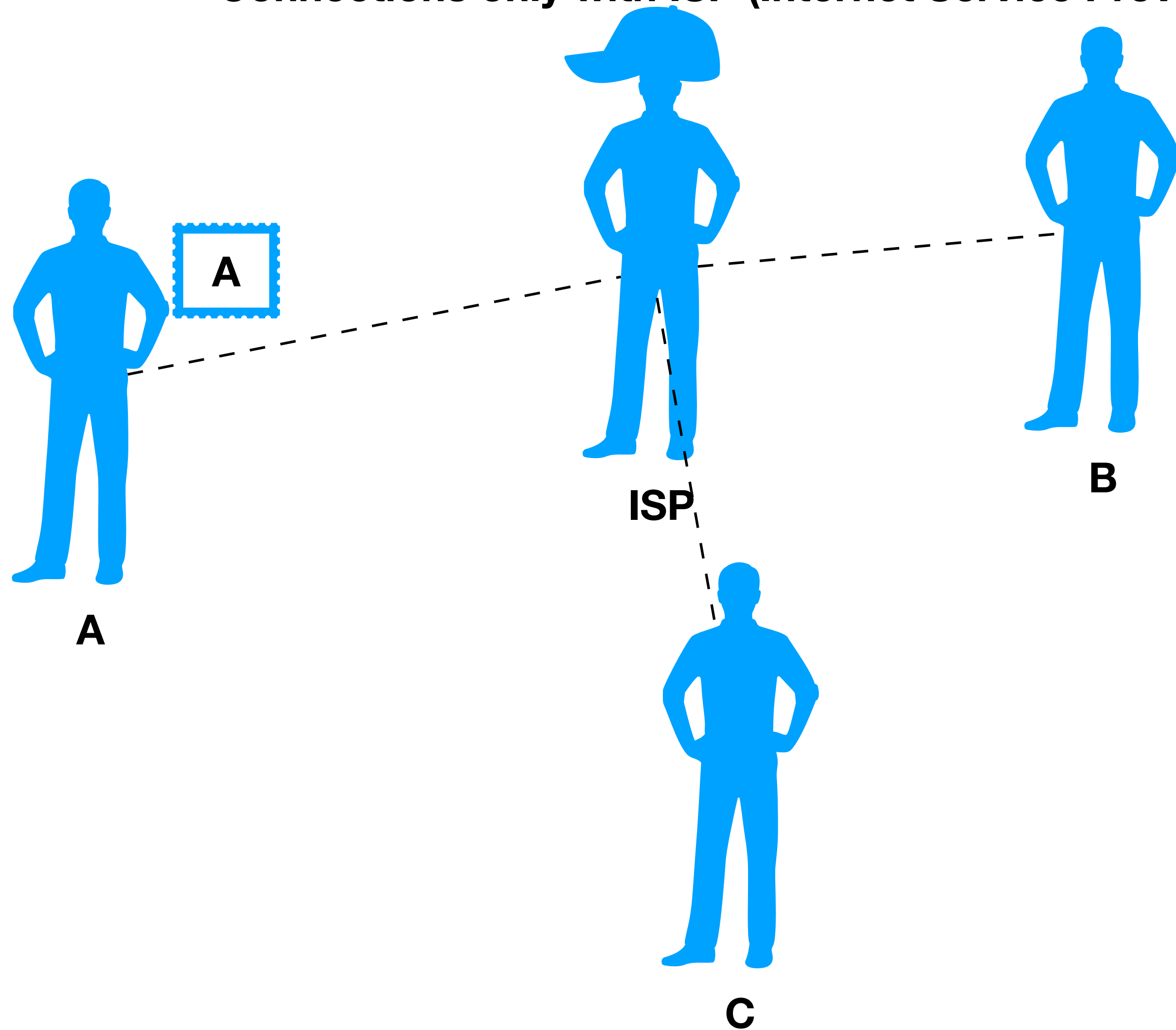
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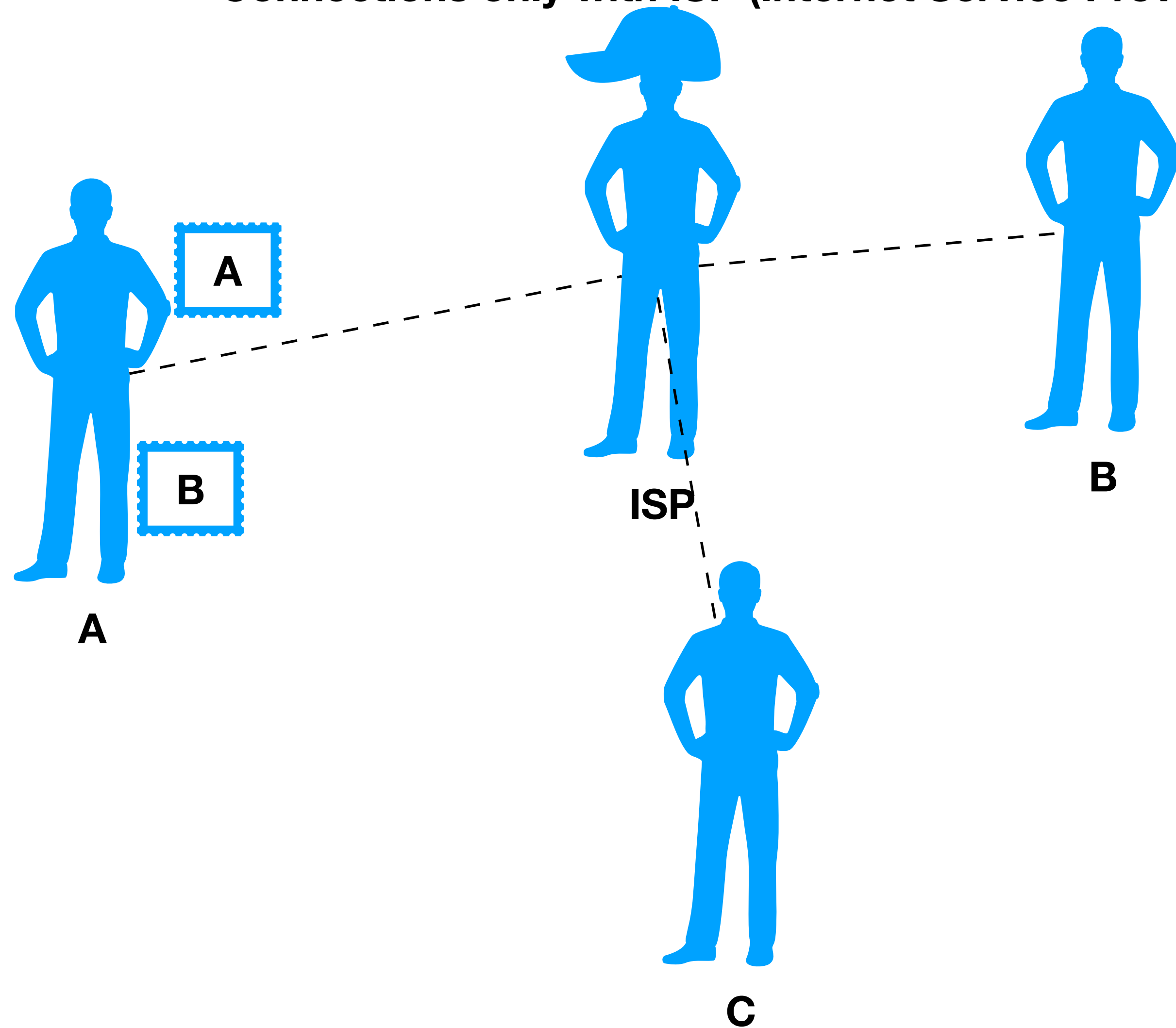
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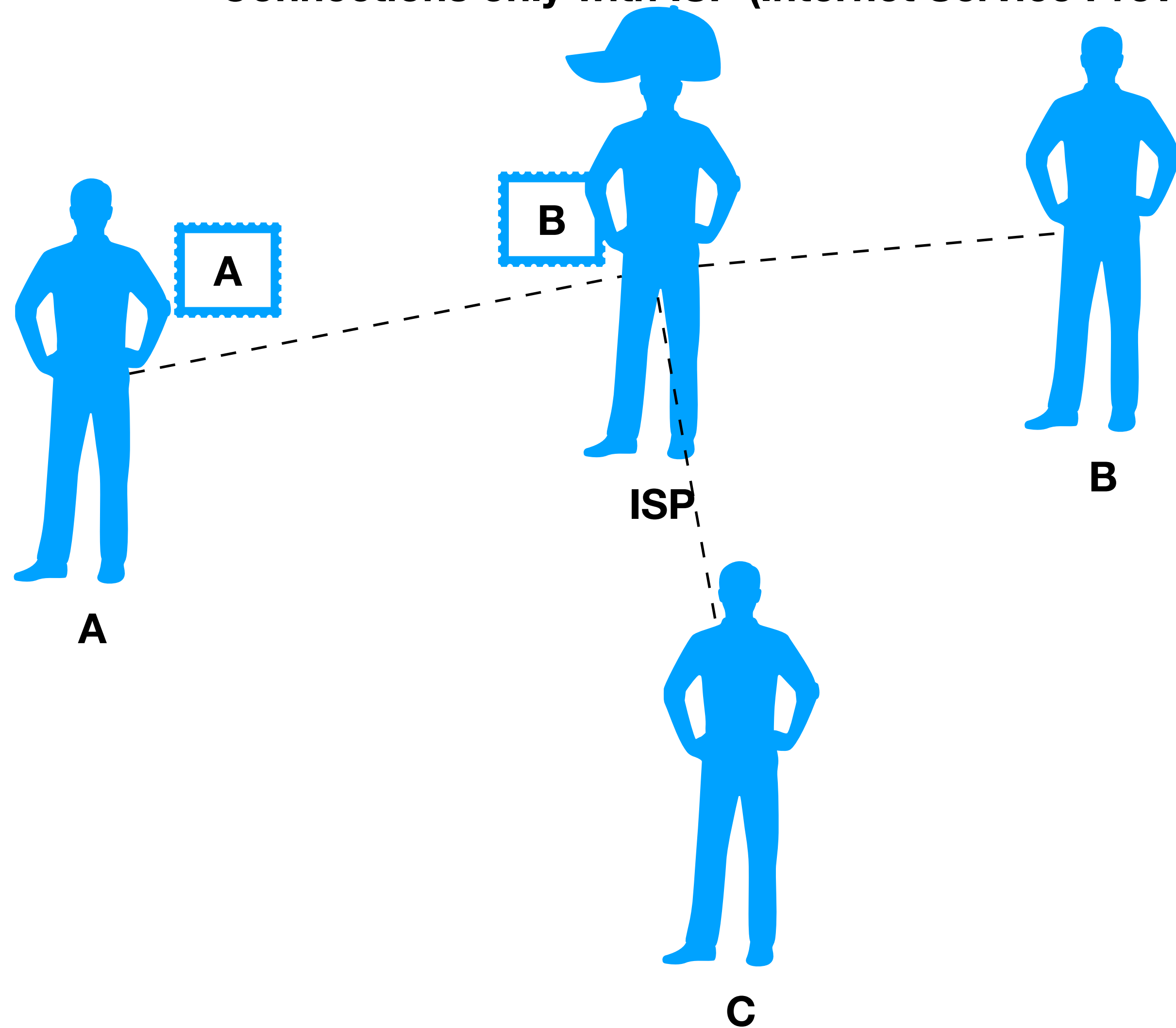
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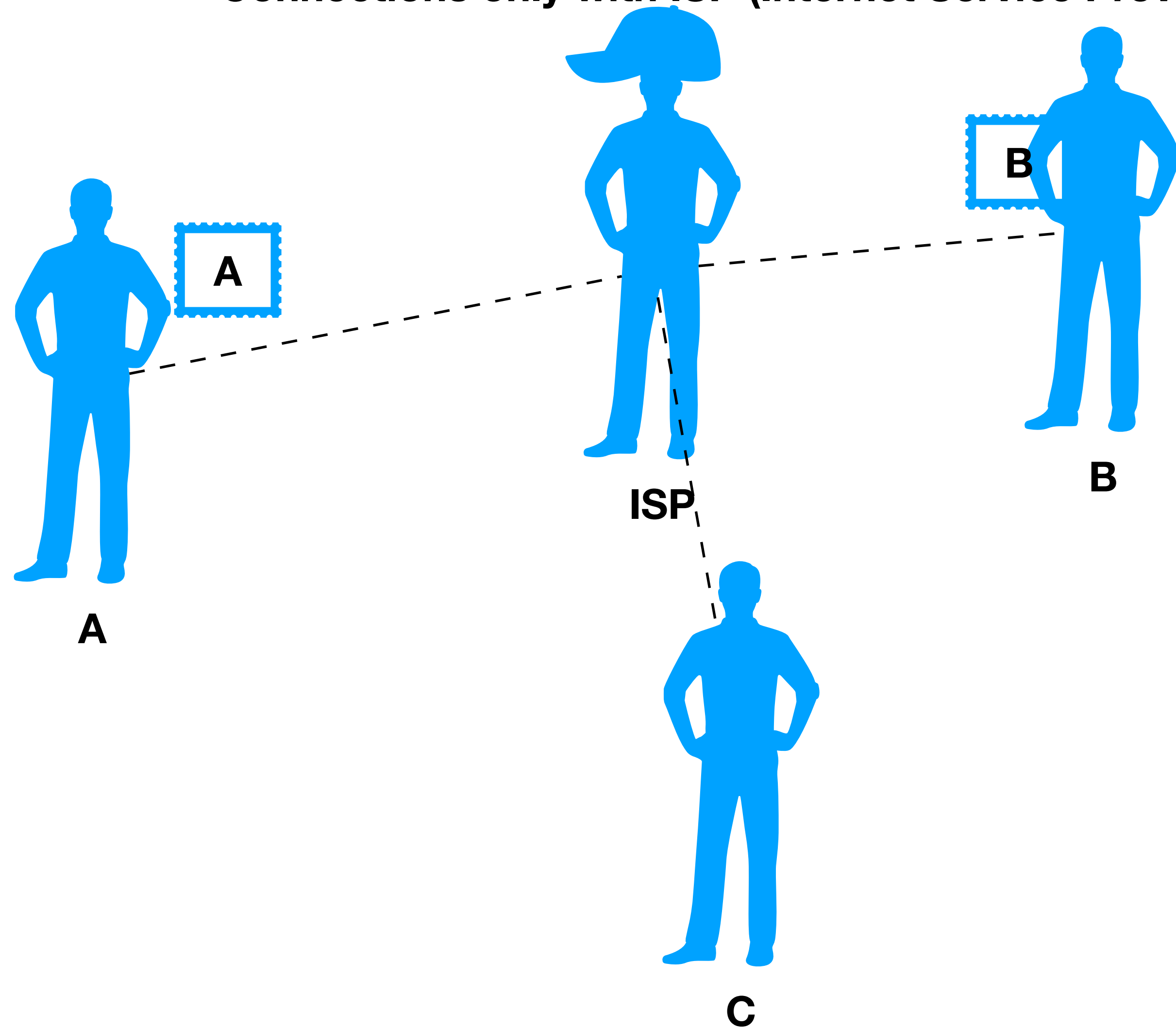
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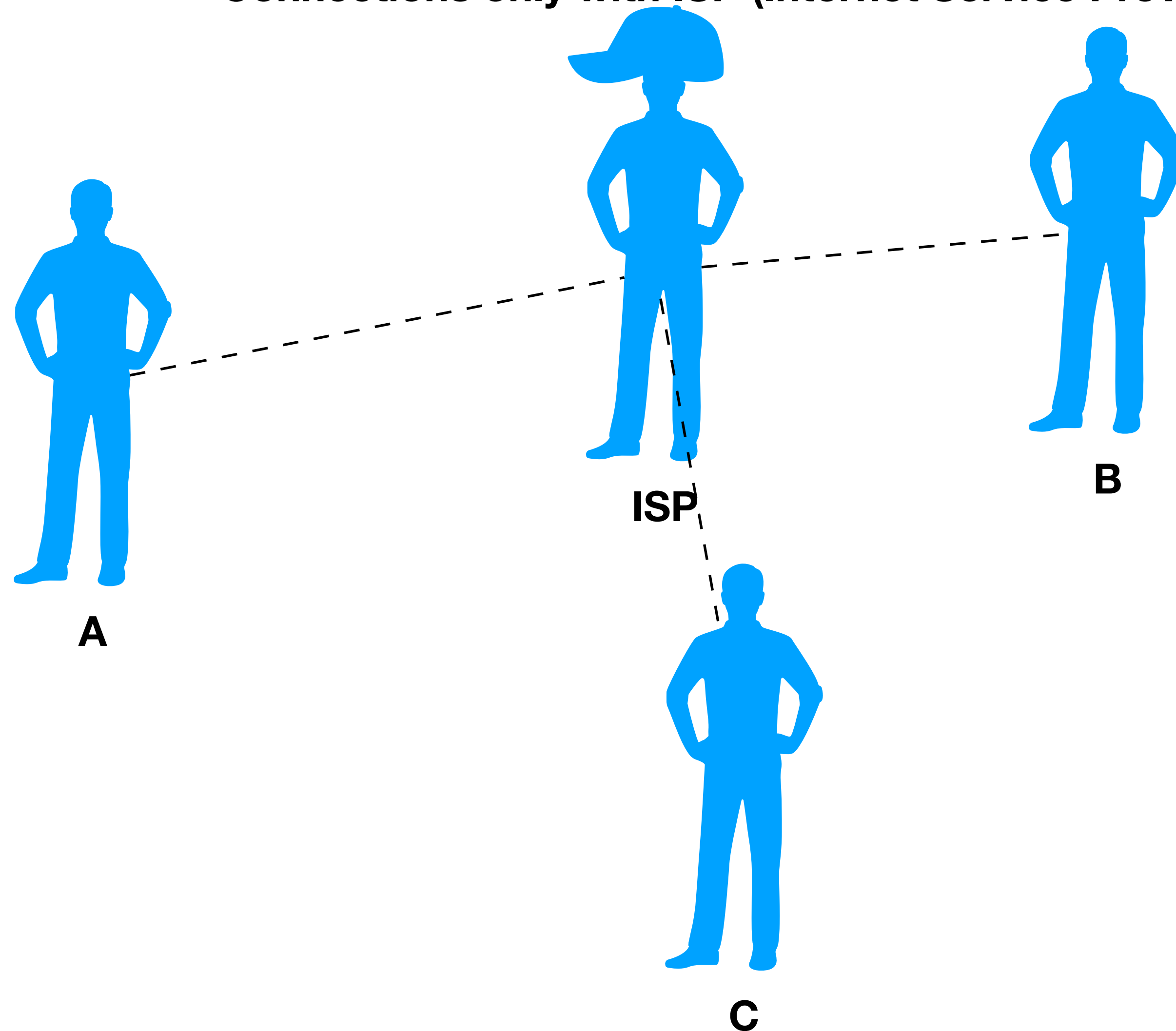
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Example

Packet Switching

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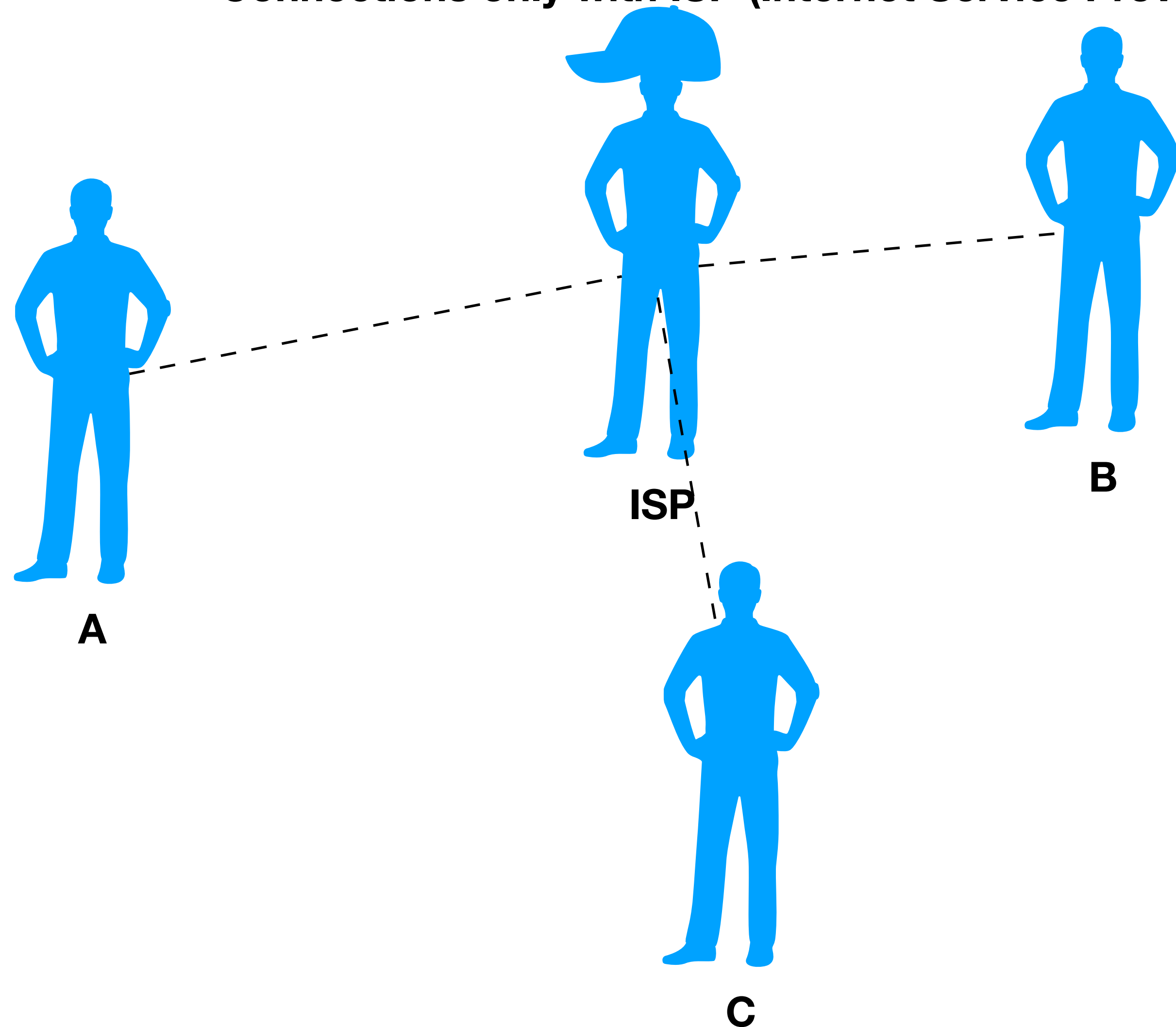


Packet: data, information

Example

Packet Switching

Connections only with ISP (Internet Service Provider)



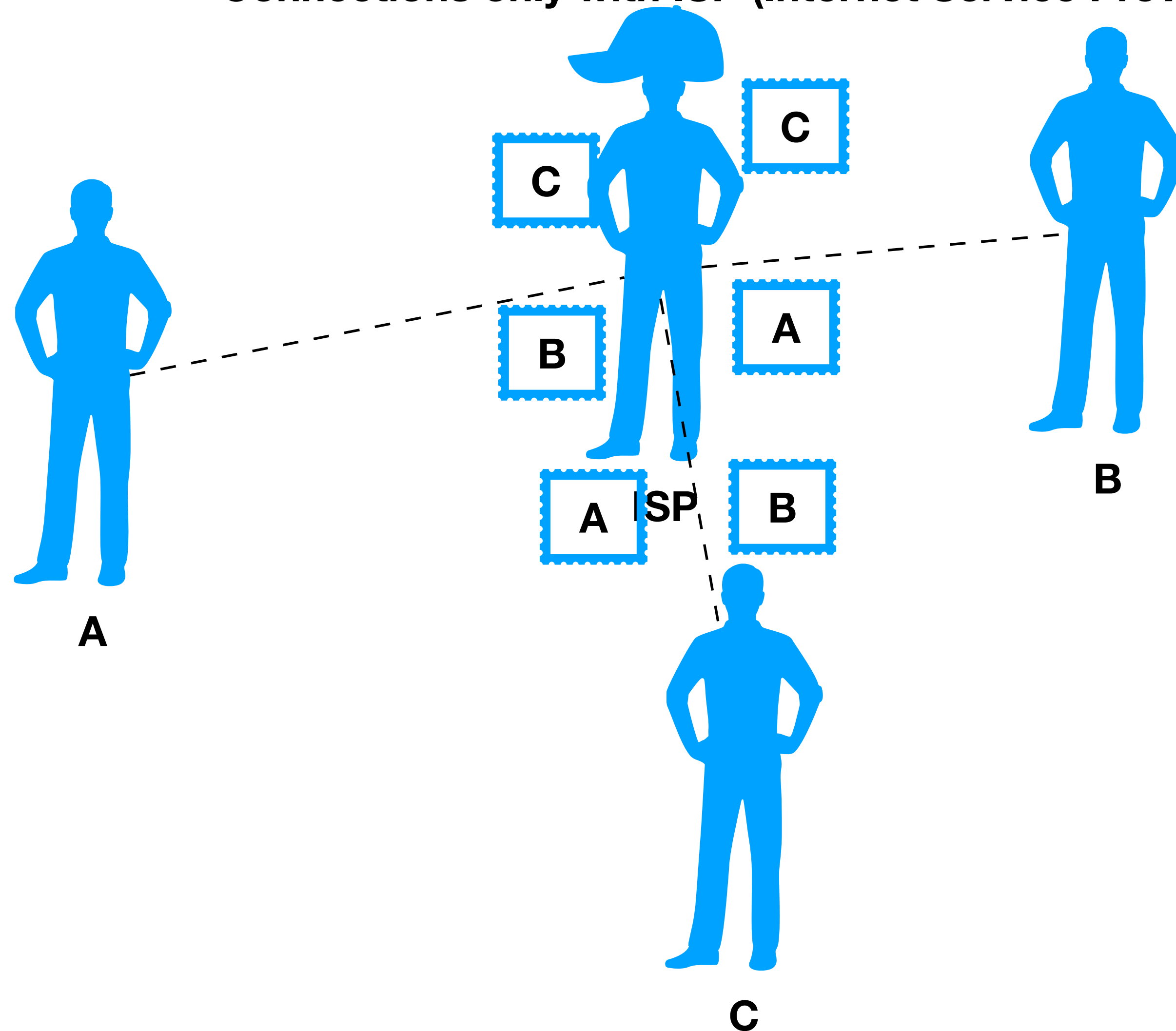
Packet: data, information

Packet switching:
Too many packets arrive at the
same time, how to handle it?

Example

Packet Switching

Connections only with ISP (Internet Service Provider)



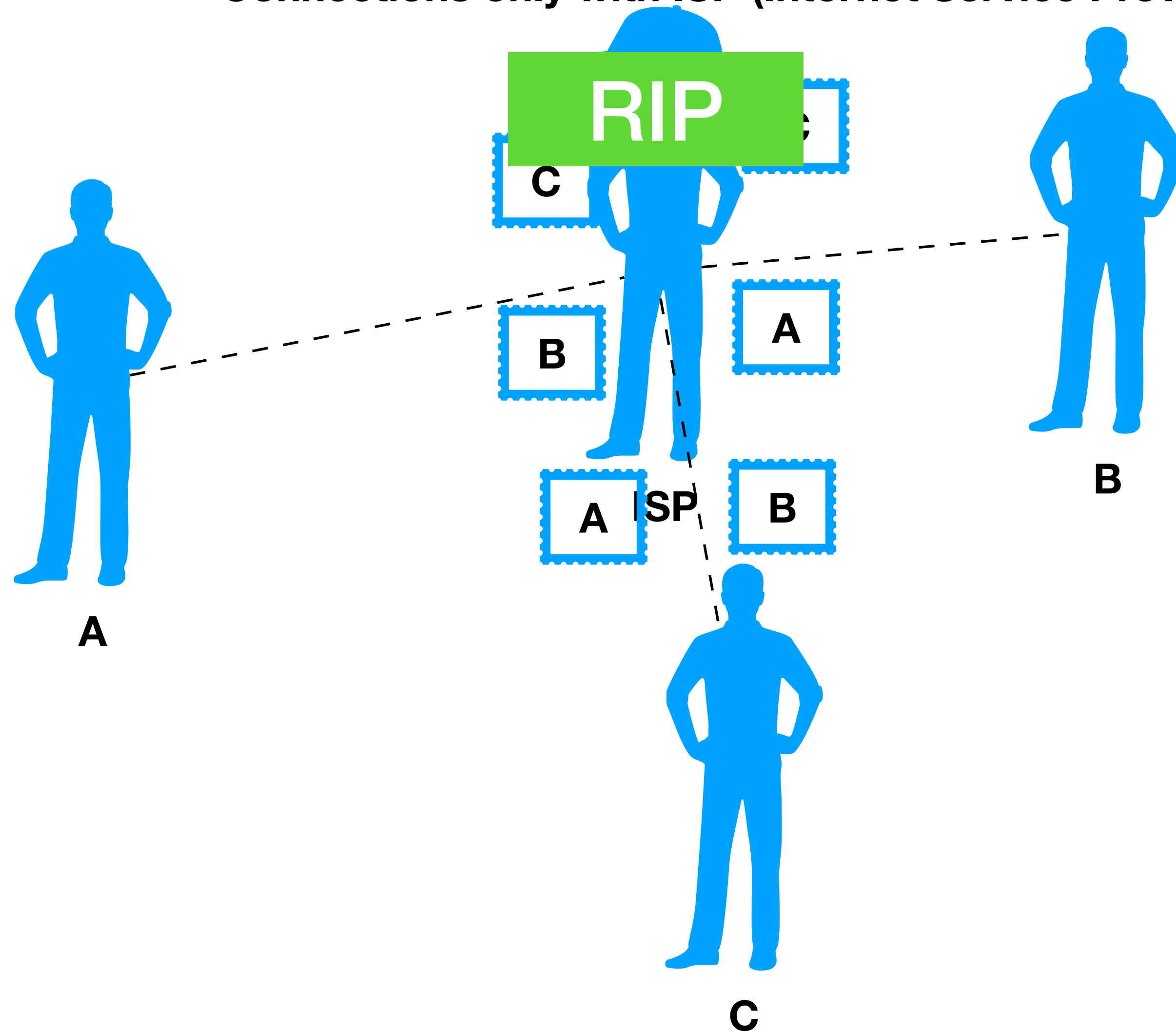
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Packet Switching

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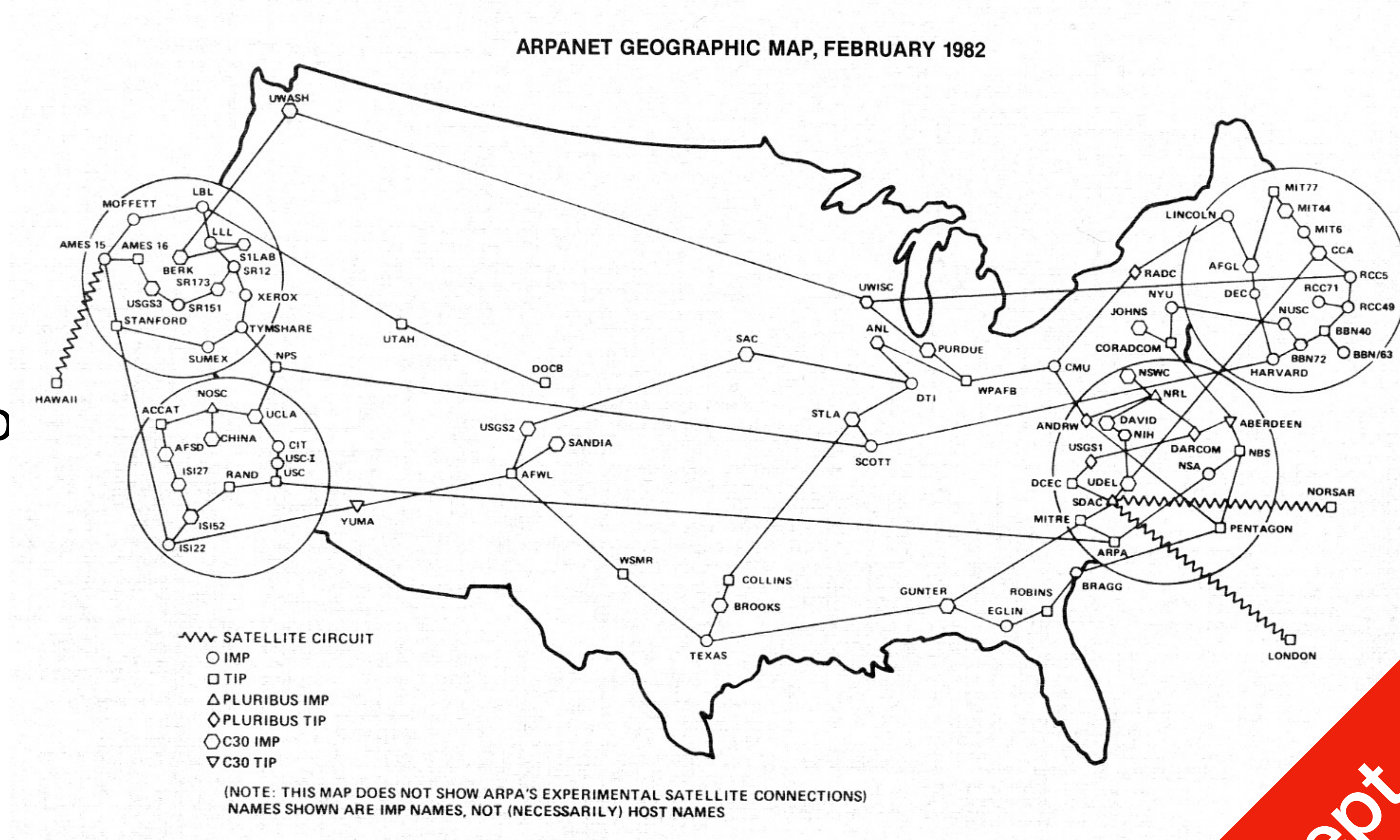
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Example

History

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- University of Utah with three research centres in California
- A prototype to test the concept **packet switching**
- **1982: international**
- **1994: privatisation of internet**

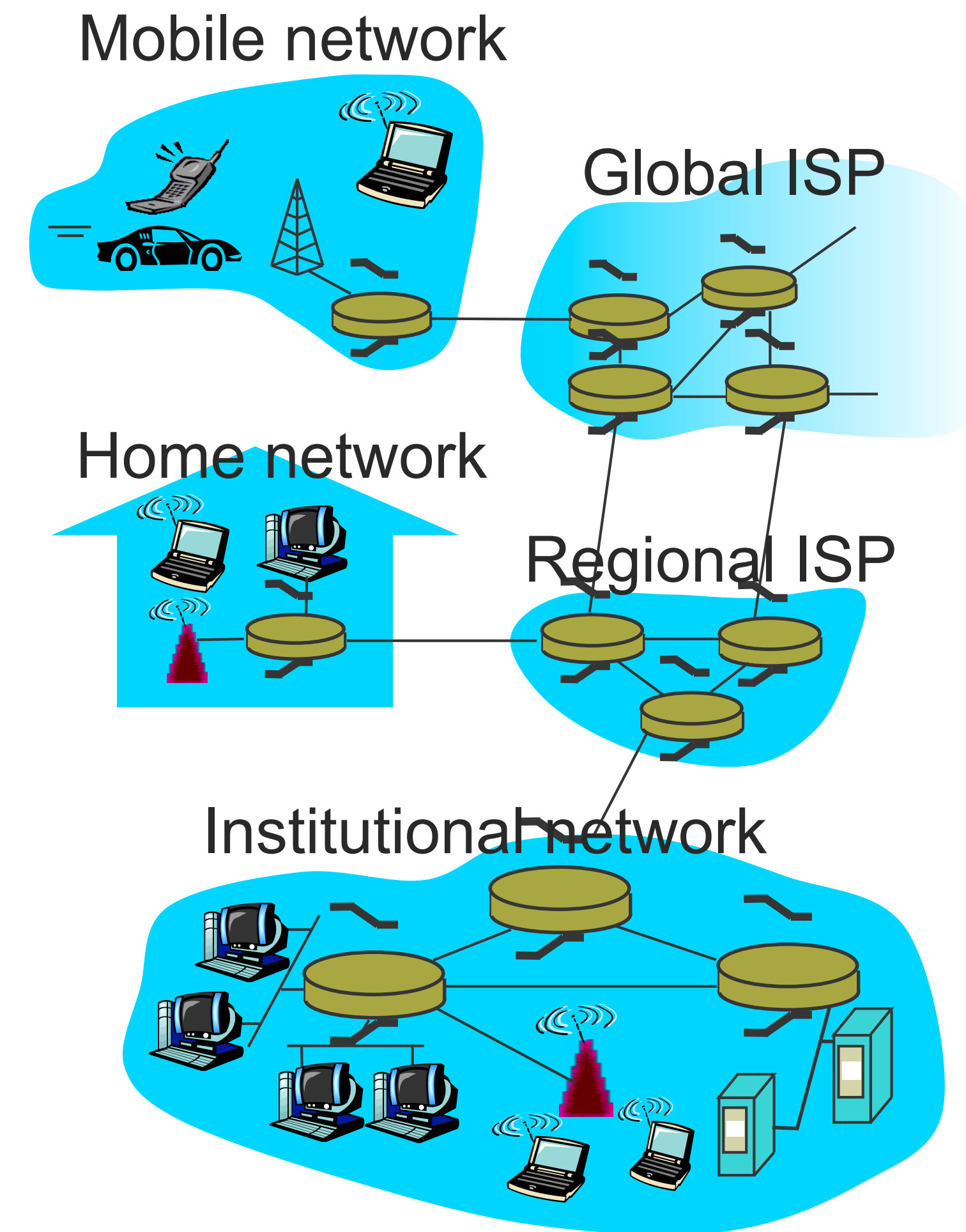


Concept

Constructions/ Infrastructures

Communication Infrastructure

- ISP: Internet Service Provider
 - Provide connections to end-users and access to sub-networks
- Mobile network
 - 3G, 4G LTE, 5G, satlink, etc.



Essence: Delivery Business

- The essence of internet is **Packet Delivery**
 - Transfer data between end systems
 - Each packet is a fixed size data block
 - Packet delivery services depends on the protocol
 - Best effort (ASAP but unreliable, most common)
 - Reliable data delivery: reserved for critical services

Network Architecture

Network Architecture

- Very very very complicated, so complicated that I can promise you you cannot remember after I tell you

Network Architecture

- Very very very complicated, so complicated that I can promise you you cannot remember after I tell you
- So I am not gonna tell you (a lot)

Multiple layers of hardware and software

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- Physical (e.g. cable, RJ45)

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You are agnostic

Brilliance

Brilliance

- What make the internet such an amazing technology?

Brilliance

- What make the internet such an amazing technology?
- Your average user don't know how complicated it is

Brilliance

- What make the internet such an amazing technology?
- Your average user don't know how complicated it is
- Most professional IT people don't know how complicated it is

The Evolution of Human Race in Age of Internet

What makes the Internet Different?

What makes the Internet Different?

- We know the internet is all about delivering information

What makes the Internet Different?

- We know the internet is all about delivering information
- What makes it different from the other technology?

Important Technologies

Important Technologies

- Letters

Important Technologies

- Letters
 - + Distant communications, through text

Important Technologies

- Letters
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- Telegram

Important Technologies

- Letters
 - + Distant communications, through text
- Telegram
 - + Fast communications, through text (but not instant)

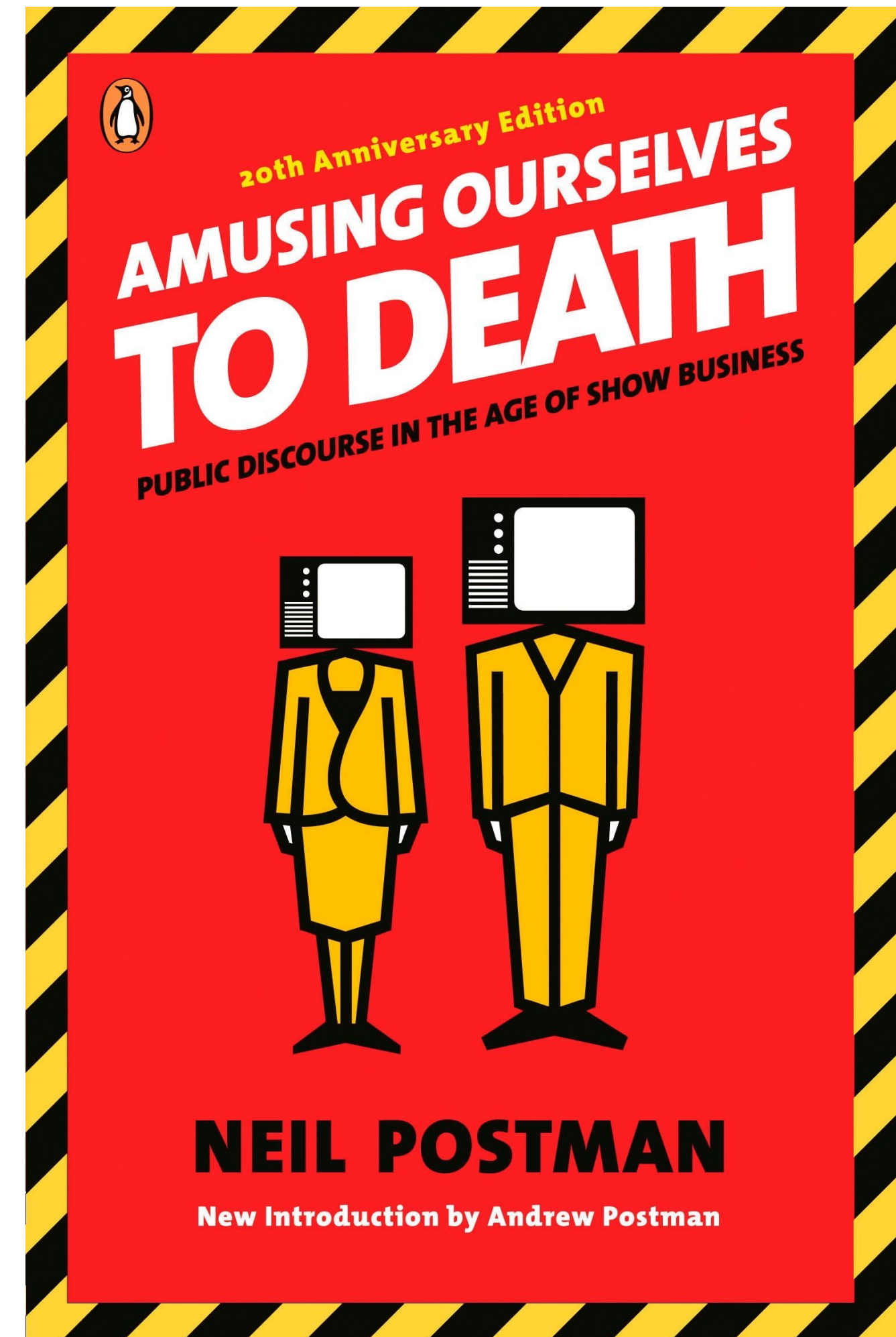
Important Technologies

- Letters
 - + Distant communications, through text
- Telegram
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- Telephone

Important Technologies

- Letters
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- Telegram
 - + Fast communications, through text (but not instant)
- Telephone
 - + Acoustics, instantaneous

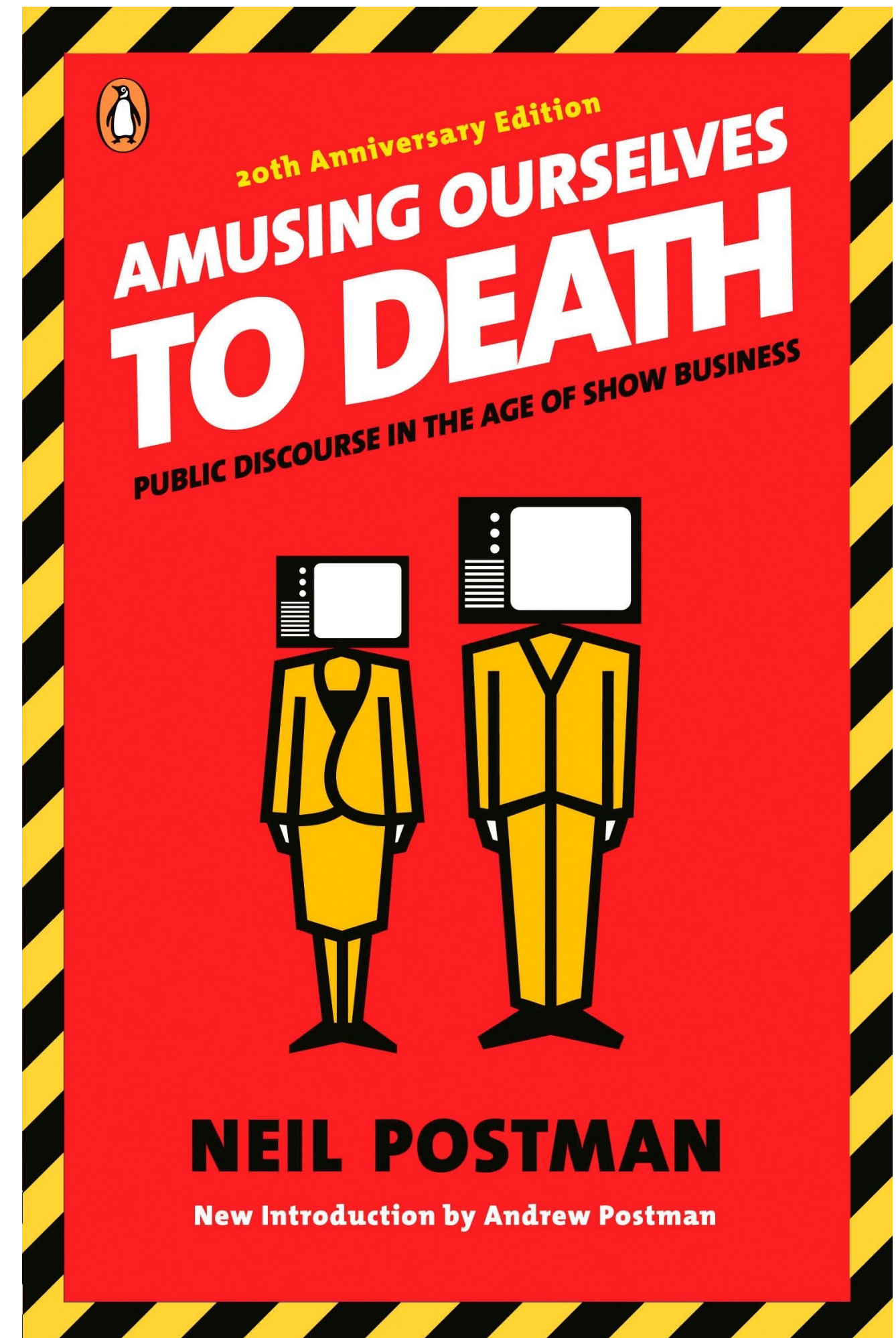
Important Technologies



Concept

Important Technologies

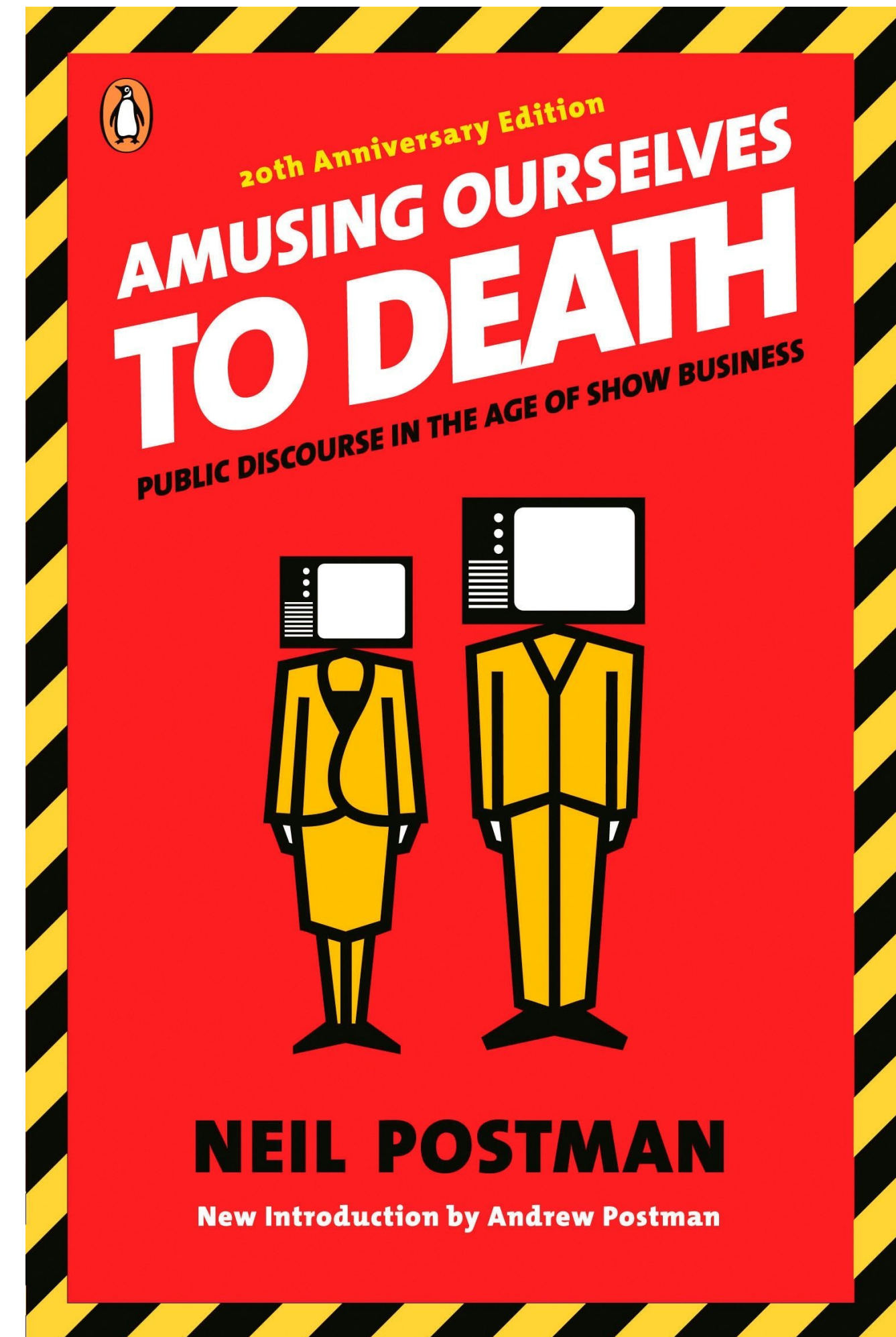
- Televisions



Concept

Important Technologies

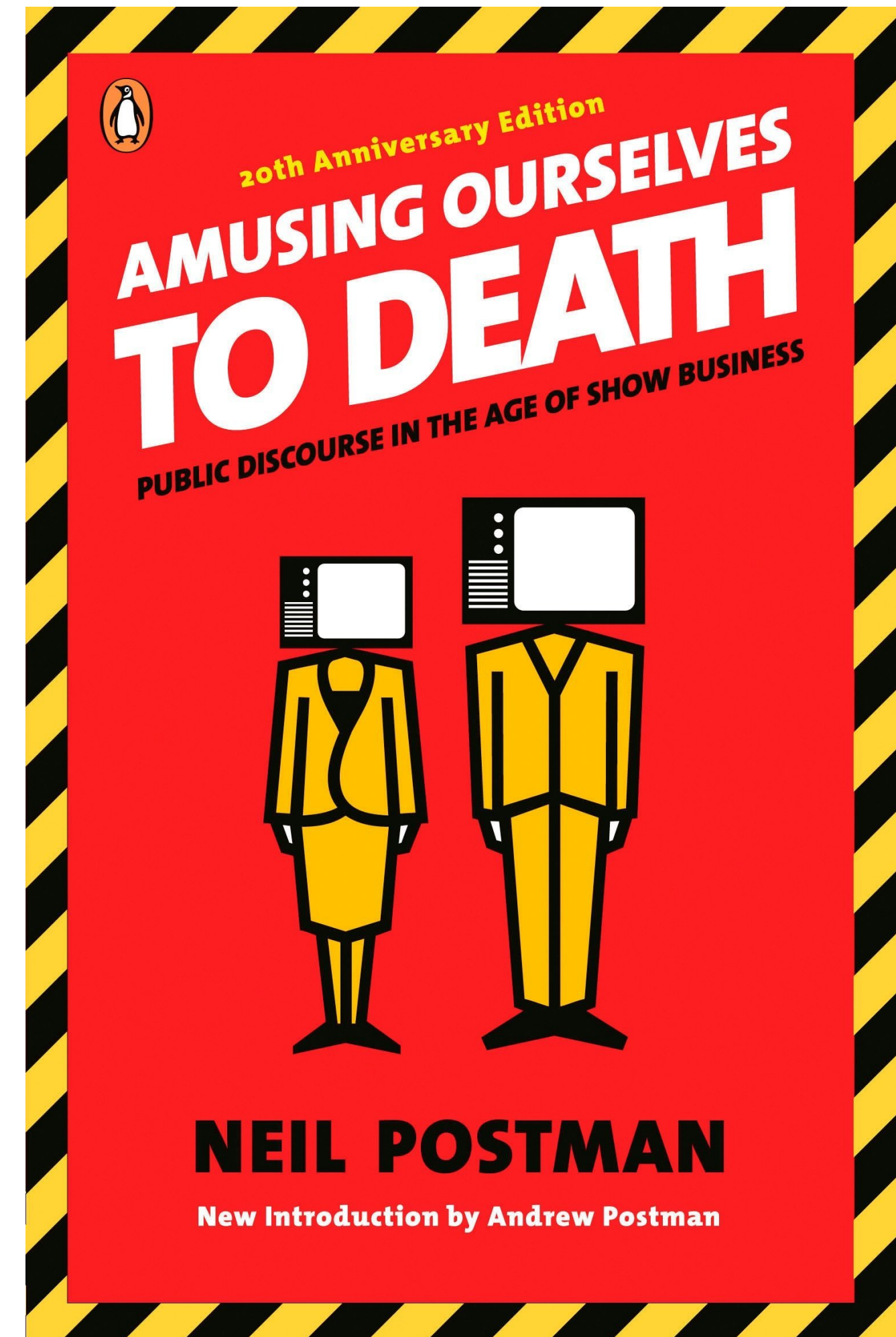
- Televisions
- + Video, Age of brand new medium



Concept

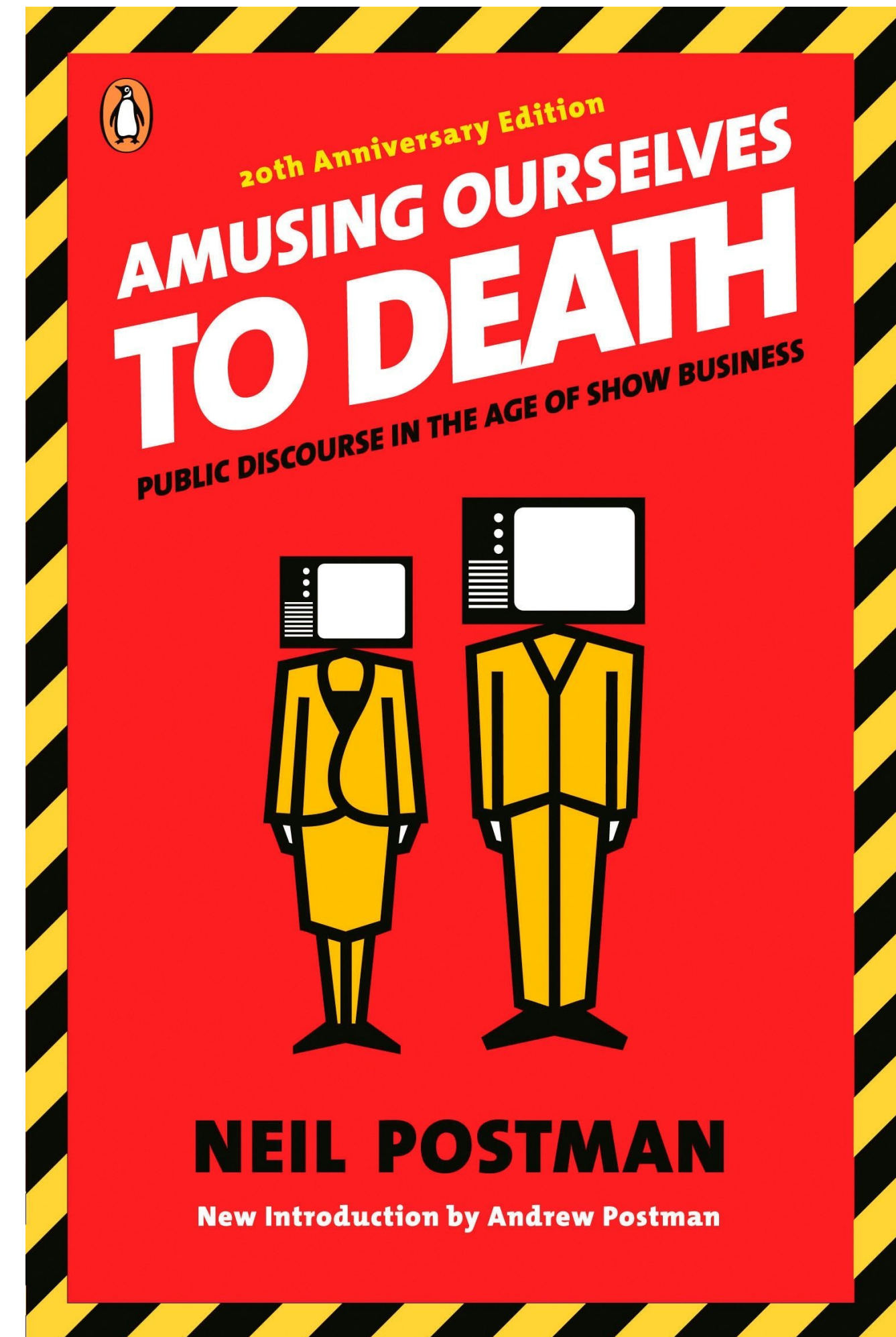
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- Videoconferencing



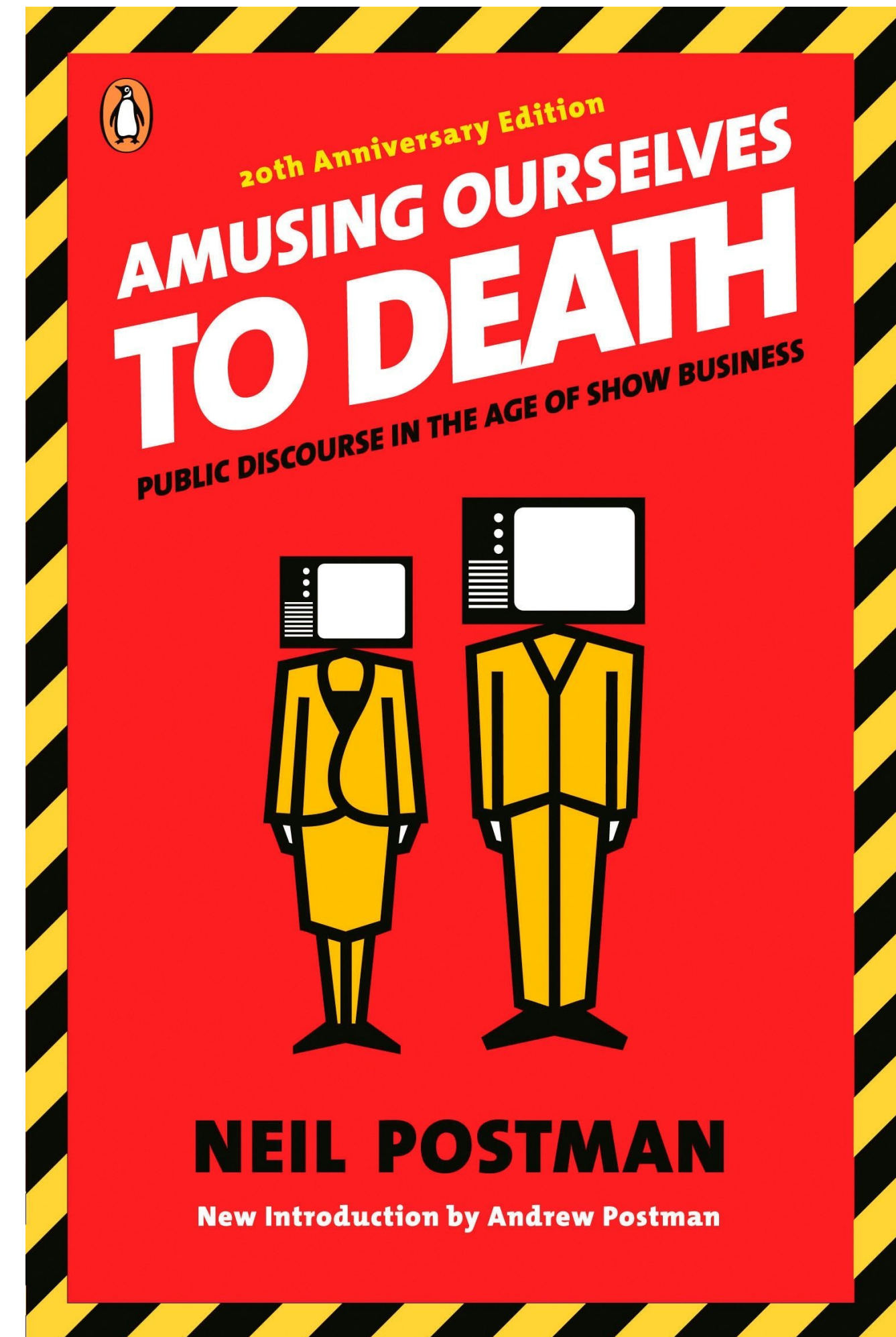
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 - + Instantaneous video



Important Technologies

- Televisions
 - + Video, Age of brand new medium
- Videoconferencing
 - + Instantaneous video
 - + Virtual presence



Concept

What makes the Internet so revolutionary?



What makes the Internet so revolutionary?

- Automation
- Detachment
- Untraceable

Automation

- Service Automation



- Medium Automation



Automation

Think

Automation

- Manufacturing cost for fashion brands like Zara is 5% of their retail prices

Think

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- Most spendings are online advertisement

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Automation

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Automation

- Manufacturing cost for fashion brands like Zara is 5% of their retail prices
- Most spendings are online advertisement
- 90% of sales for a small Café in central China comes from online delivery order
- Cost of a single ad by an influencer in China: (ByteDance, up to 50K CAD)

Think

Automation

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Think

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- Cost of a single ad by an influencer in China: (ByteDance, up to 50K CAD)
- Online job seekers: 100 resumes a day, for a barista position on E Hasting st
- Eventually, the owner hired two people how came physically to the shop and dropped off resume

Think

Automation

Automation

- Media consumption

Automation

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- How many hours do you spend on social media?



Automation

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- Have you tried blogging / vlogging?

Automation

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- When is the last time you went for something NOT given by an automated recommendation system?


Think

Automation

- Media consumption
- How many hours do you spend on social media? 
- Have you tried blogging / vlogging?
- When is the last time you went for something NOT given by an automated recommendation system?
- Why do you go to the theatre instead of Netflix?




Automation

- Media consumption

- How many hours do you spend on social media? 
- Have you tried blogging / vlogging?
- When is the last time you went for something NOT given by an automated recommendation system?
- Why do you go to the theatre instead of Netflix?
- When is the last time you picked up a book and read? (including eBooks)

Think

Detachment

- Are instant messages really instant? 
- Polarised public opinions
Is internet encouraging free speech or censoring it? 
- Service detachment
"Inhumane" automation of services 

Detachment

Think

Detachment

- Have you gone out a day without internet?



Detachment

- Have you gone out a day without internet?
- How frequent do you check your phone?

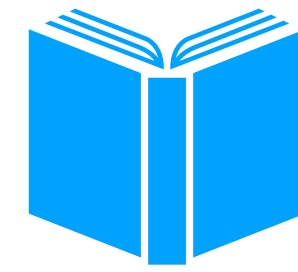


Detachment



- Have you gone out a day without internet?
- How frequent do you check your phone?
- When's the last time you ate with friends **WITHOUT** ever checking your smartphone?

Detachment



- Have you gone out a day without internet?
- How frequent do you check your phone?
- When's the last time you ate with friends WITHOUT ever checking your smartphone?
- Have you ever broken up with someone over SMS/Social Media?

Think

Detachment



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- Have you ever had "read but no reply"?

Think

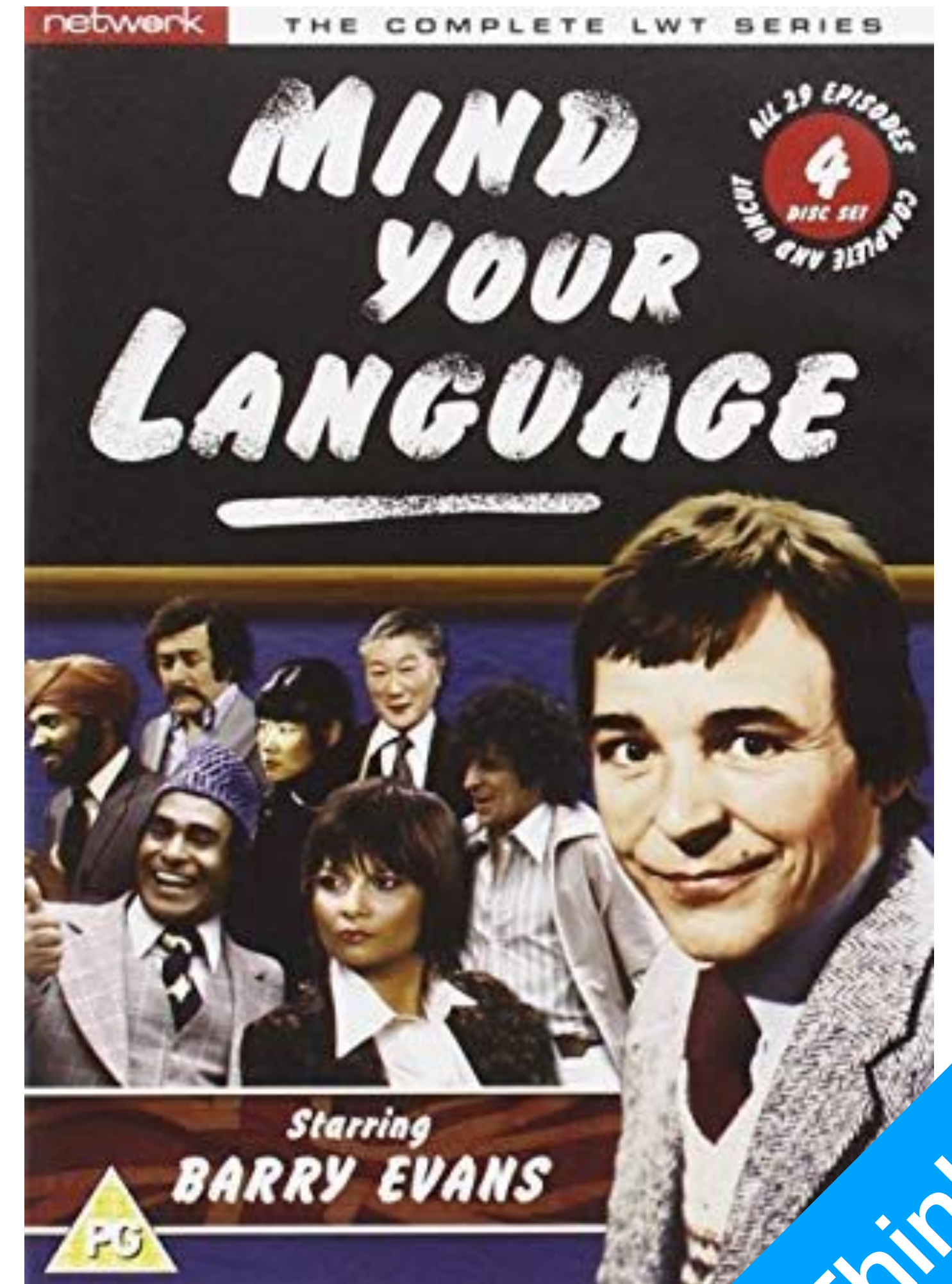
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- How frequent do you check your phone?
- When's the last time you ate with friends WITHOUT ever checking your smartphone?
- Have you ever broken up with someone over SMS/Social Media?
- Have you ever had "read but no reply"?
- How often do conversations start/end with memes?

Think

Detachment

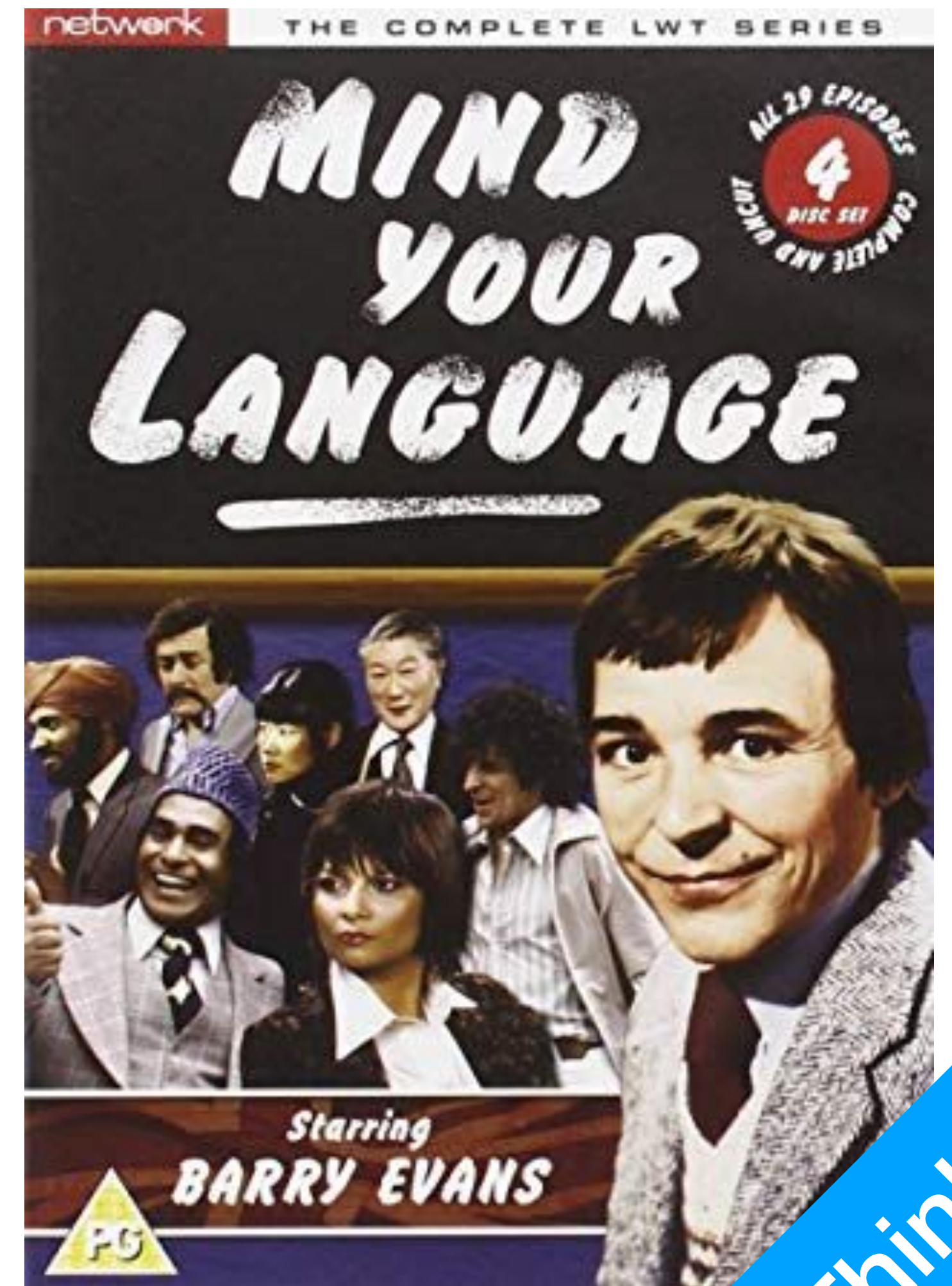


Think

1. Watch Mind Your Language on youtube, do you think this show would have been made in 2020?

Detachment

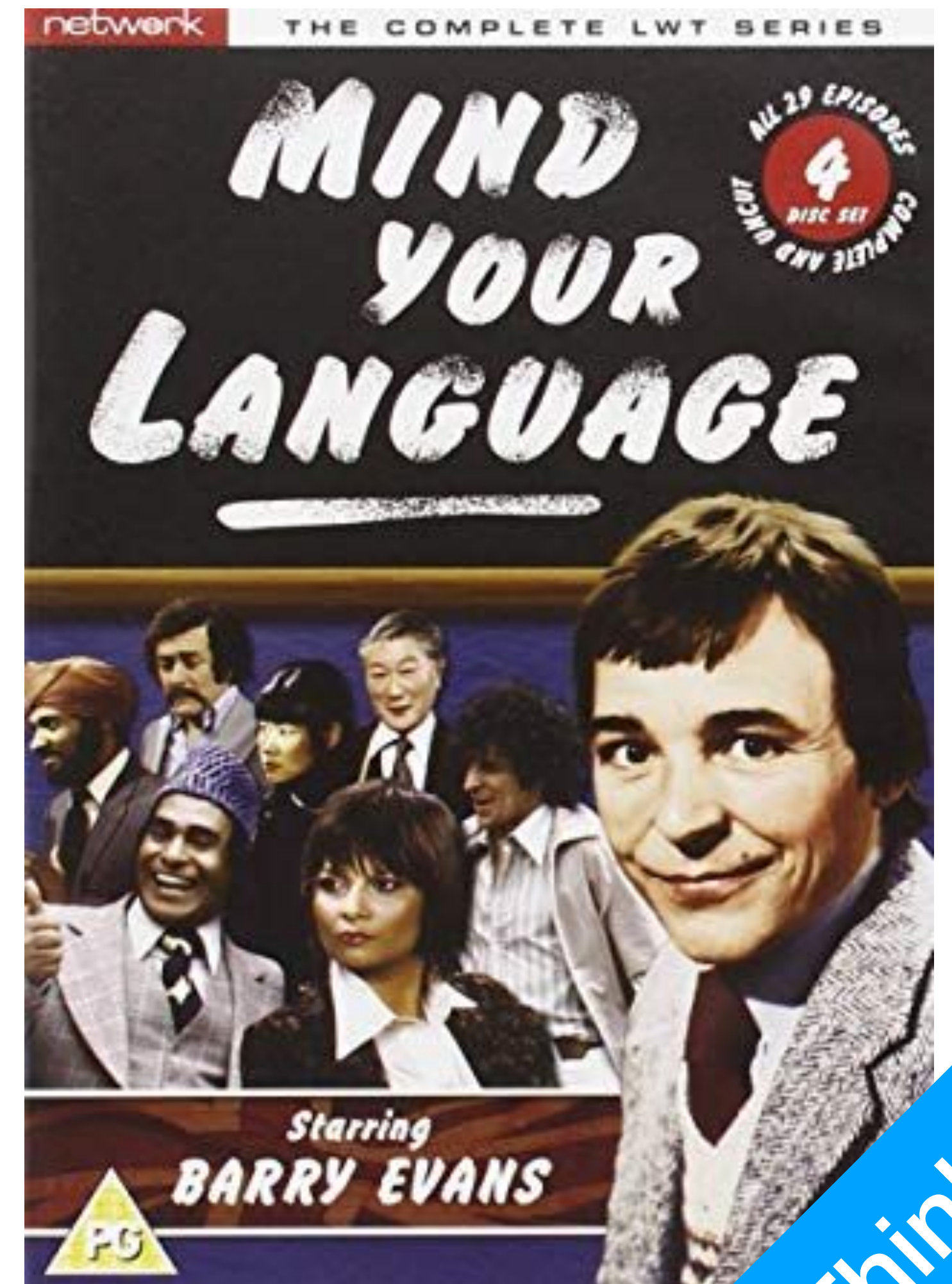
- Do you make your own choices?



Think

Detachment

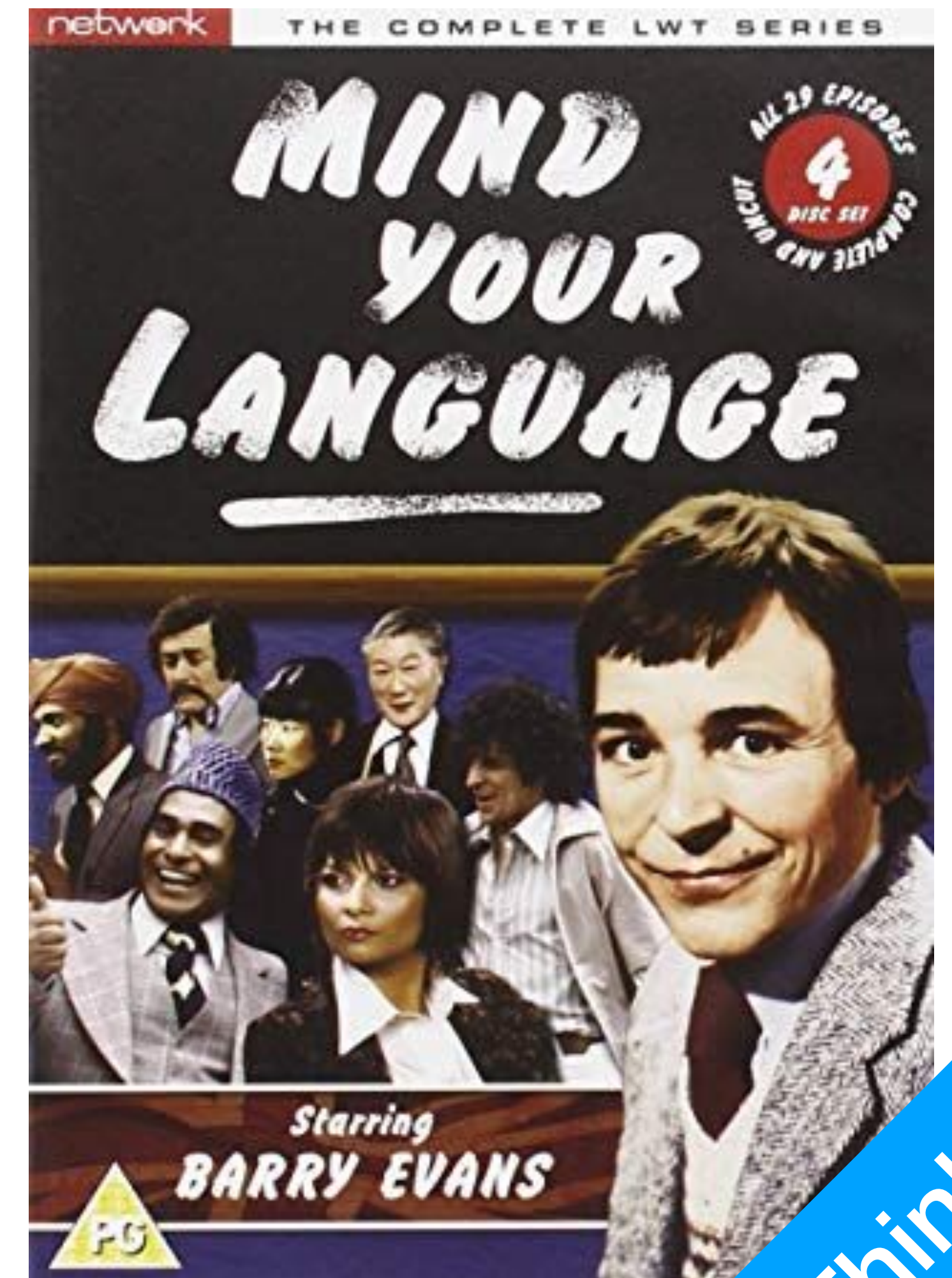
- Do you make your own choices?
- Do you really make your own choices?
Think about the bad things you've heard about Trump and Joe Biden. Are those sources really reliable?



Think

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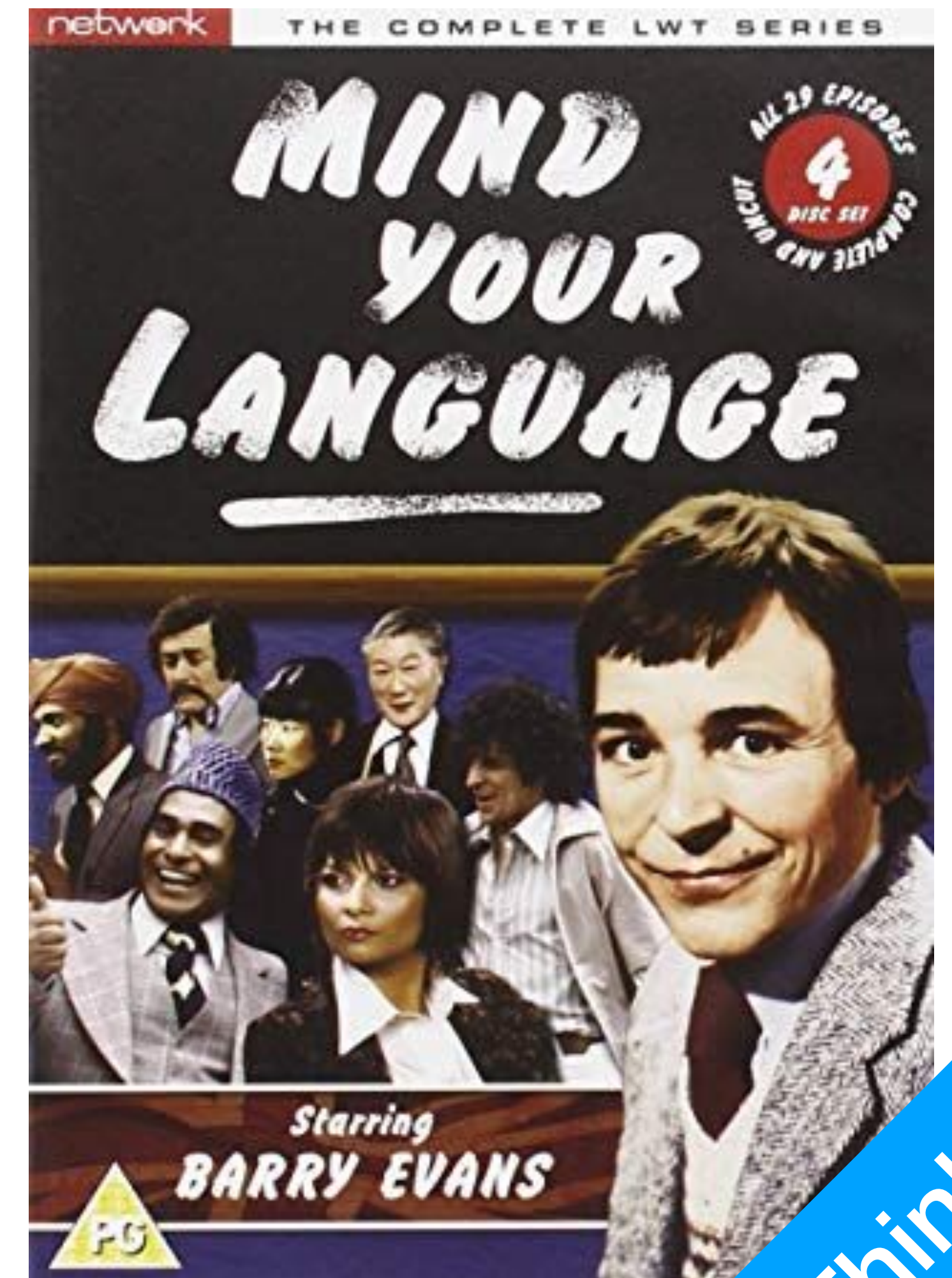
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- What do you think about Political Correctness?



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Detachment

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- What do you think about Political Correctness?
- What do you think about the Sino-Indian conflicts in recent days?



Think

Detachment

Think

Detachment


- Have you tried Fido's customer service?

Detachment



- Have you tried Fido's customer service?
- What do you think about online counselling?

Think

Detachment




- Have you tried Fido's customer service?
- What do you think about online counselling?
- Ever heard of Salesforce? 

Detachment

- Have you tried Fido's customer service?
- What do you think about online counselling?
- Ever heard of Salesforce? 
- What do you think about online education? 

Think

Untraceable

- Blockchain and Cryptocurrencies 
- Cyberbullying and Privacy 
- Darknet 

The Evolution of Human Race in Age of Internet



The Evolution of Human Race in Age of Internet

- What has the internet changed?



The Evolution of Human Race in Age of Internet

- What has the internet changed?
 - The way we live



The Evolution of Human Race in Age of Internet

- What has the internet changed?
 - The way we live
 - interact with family and friends, entertain, eat, and travel



The Evolution of Human Race in Age of Internet

- What has the internet changed?
 - The way we live
 - interact with family and friends, entertain, eat, and travel
 - The way we work



The Evolution of Human Race in Age of Internet

- What has the internet changed?
 - The way we live
 - interact with family and friends, entertain, eat, and travel
 - The way we work
 - Online businesses



The Evolution of Human Race in Age of Internet

- What has the internet changed?
 - The way we live
 - interact with family and friends, entertain, eat, and travel
 - The way we work
 - Online businesses
 - Intelligent business systems



The Evolution of Human Race in Age of Internet

- What has the internet changed?
 - The way we live
 - interact with family and friends, entertain, eat, and travel
 - The way we work
 - Online businesses
 - Intelligent business systems
 - The way we die



The Evolution of Human Race in Age of Internet

- Internet is a tool.
- DO NOT BE USED BY A TOOL.