



# How Node Named Networks (3N) led us to Specialized Distributed IPC Facilities

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# Outline

- What is 3N?
- How have networks been described in history?
- Why is any of this important?
- RINA and Specialized DIFs

# What is 3N?

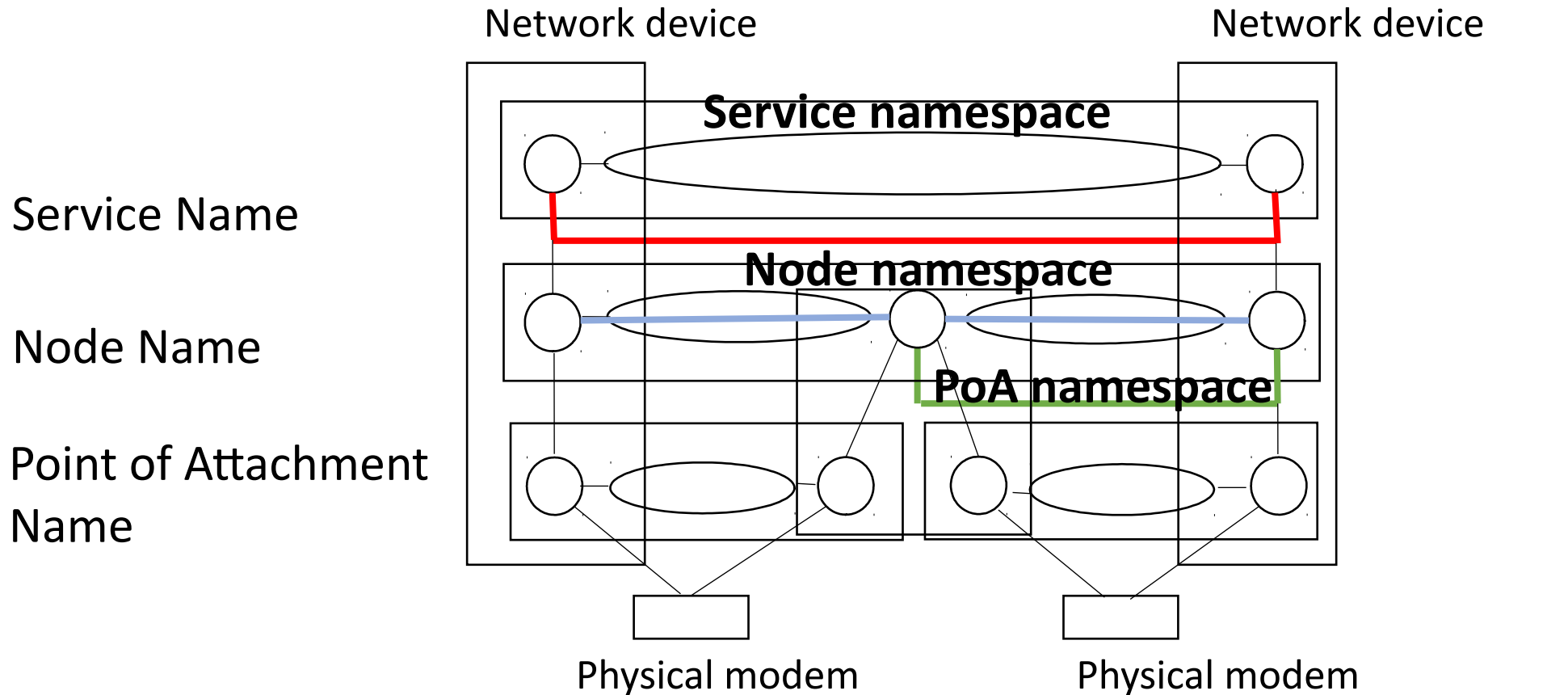
- Disclaimers
  - I am **not** Japanese
  - I work in a **very** Japanese environment
  - Japanese software understanding stems from electronic circuit design
    - Describing certain ideas requires a different viewpoint approach
  - This presentation is based on our experience in Japan of promoting RINA
    - Your mileage by vary in other places

# What is 3N?



- RINA
  - Carolina Fujita
  - Fashion model in the 2000s
  - Japanese father, Italian mother

# What is 3N?



Node Named Networks (3N) explains how networks are a series of inter-connected processes in a graph and emphasize that these need to be named

- Service name resolution
- Node name location service
- Route service

# What is 3N?

- The short hand has been effective in order to:
  - **Explain the naming issue to Japanese without backlash**
  - Differentiate our proposals
  - Point out glaring inconsistencies in other proposals
    - **Japanese related funding**



# What is 3N?

Wording is undoubtedly important,  
but is this issue of misunderstanding  
common?

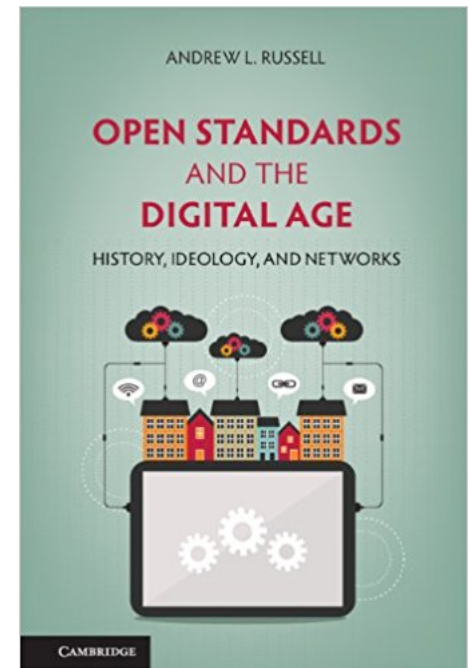
## How have networks been described in history?

- This had been rather hard to find out
  - I was born into a TCP/IP only world
- Fortunately, the last couple of years has seen a lot of historical summaries of non-TCP/IP network developments



# How have networks been described in history?

- “Open” has had a various meanings
- Minimum level of cooperation has been created in the US to avoid government involvement



# How have networks been described in history?



- “Free software” and “hacker culture” are fluid definitions
- “Open source software” was adopted as the word “Open” had already been used commonly in industry

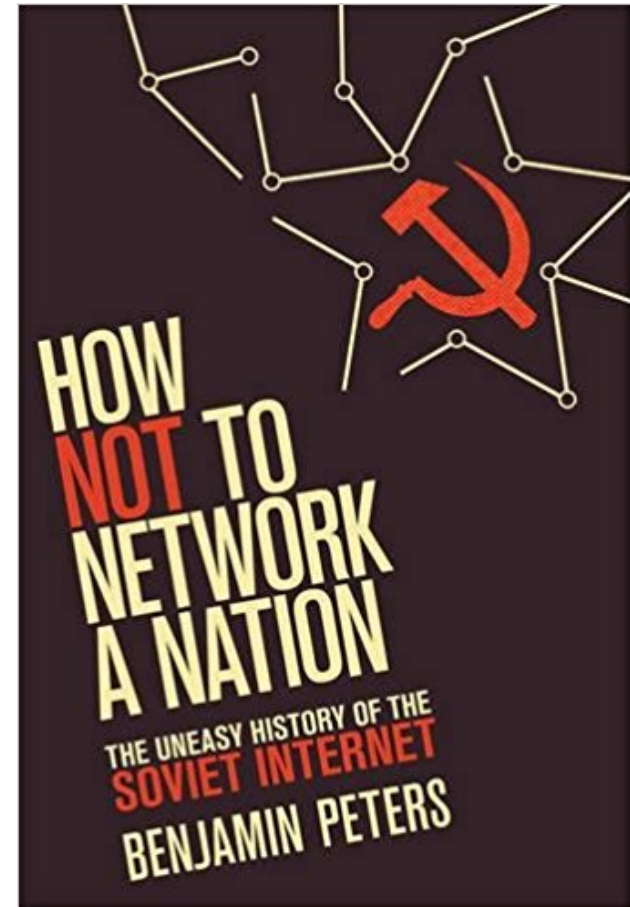
# How have networks been described in history?



- The French government, fearing IBM made a walled garden controlled by the French PTT
- Access was completely centralized and used virtual circuits
- Ran for 30 years and was widely popular

## How have networks been described in history?

- The Soviet Network was born from the Soviet need to command a centralized economy
- Political heterarchy probably brought down the network before it started



# How have networks been described in history?

## How the Internet Became Commercial



Innovation, Privatization,  
and the Birth of a New Network

SHANE GREENSTEIN

- “Open” collaboration permitted multiple players to manage the NSF TCP/IP backbone
- Government antitrust laws permitted BBs to become ISPs in the 1990s and later to have Microsoft to back off from the Internet
- NSF funding, universities’ licensing and “Open” collaboration helped foster “innovation at the edges”

# Why is any of this important?

- Computer network science should be falsifiable
- **Computer network construction relies on human and cultural requirements**
- RINA via its DIF/DAF and its separation of mechanisms and policies has the unique possibility of permitting humans to build what they want without over-kludging their designs

# RINA and Specialized DIFs

- 3N is how we got Japanese to think about different network designs
- We believe experimentation on the policies in the following areas can lead to RINA expansion:
  - Data distribution requirements
  - Real-time requirements
  - Energy constrained requirements



Thank you for your attention

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