



**RIPE  
NCC**

## **IPv6 Deployment: Dealing with Dependencies**

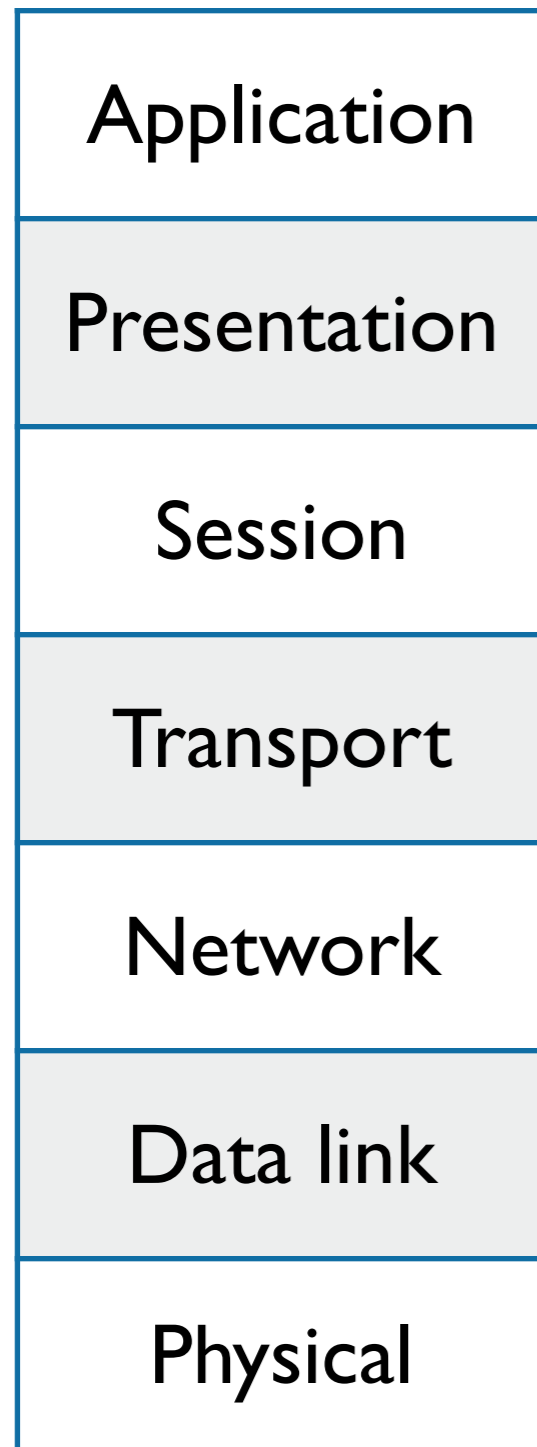
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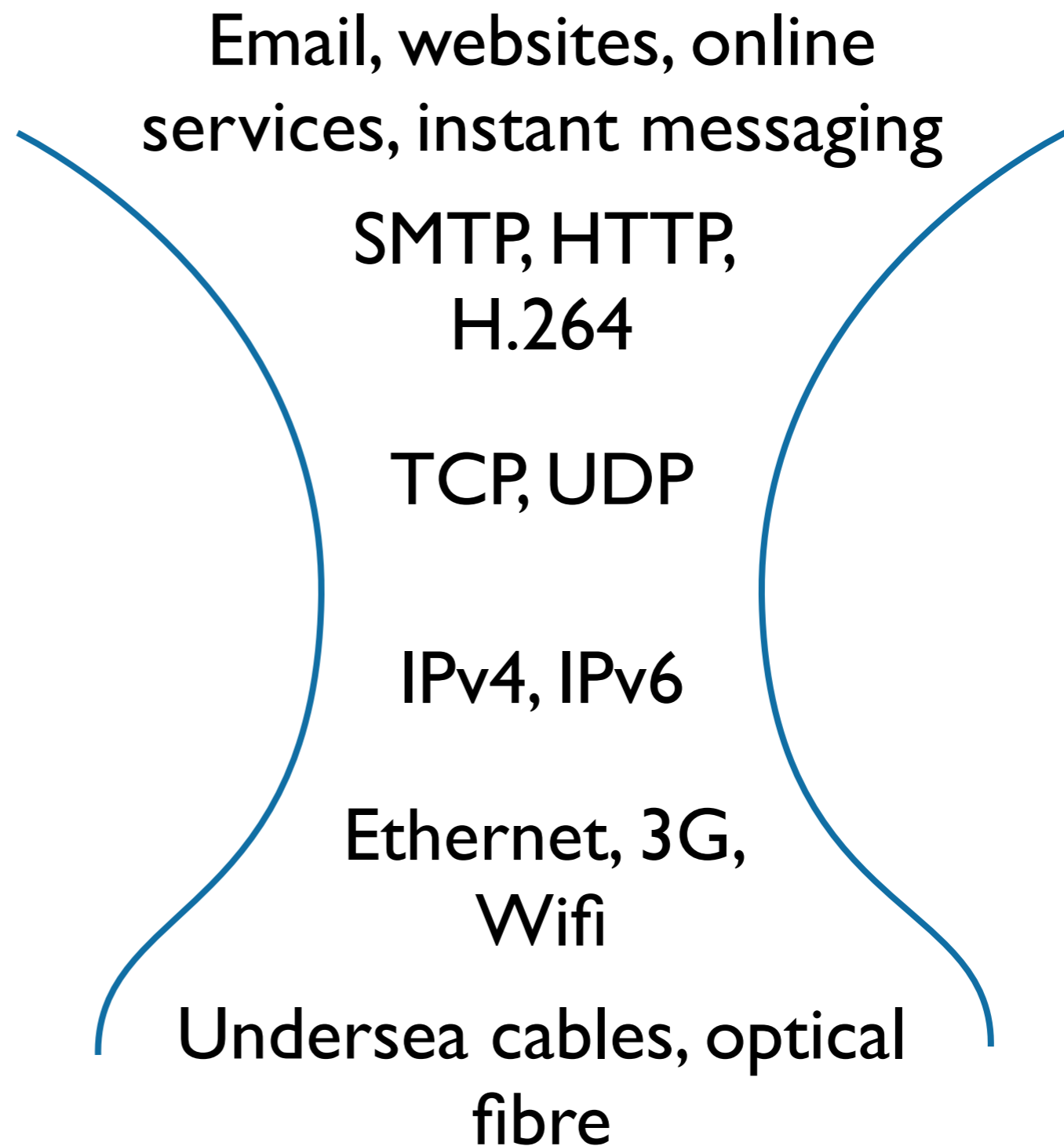
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- You need to be able to exchange IPv6 traffic
- Applications you use need to support IPv6
- You want people to start using it
- This all introduces dependencies

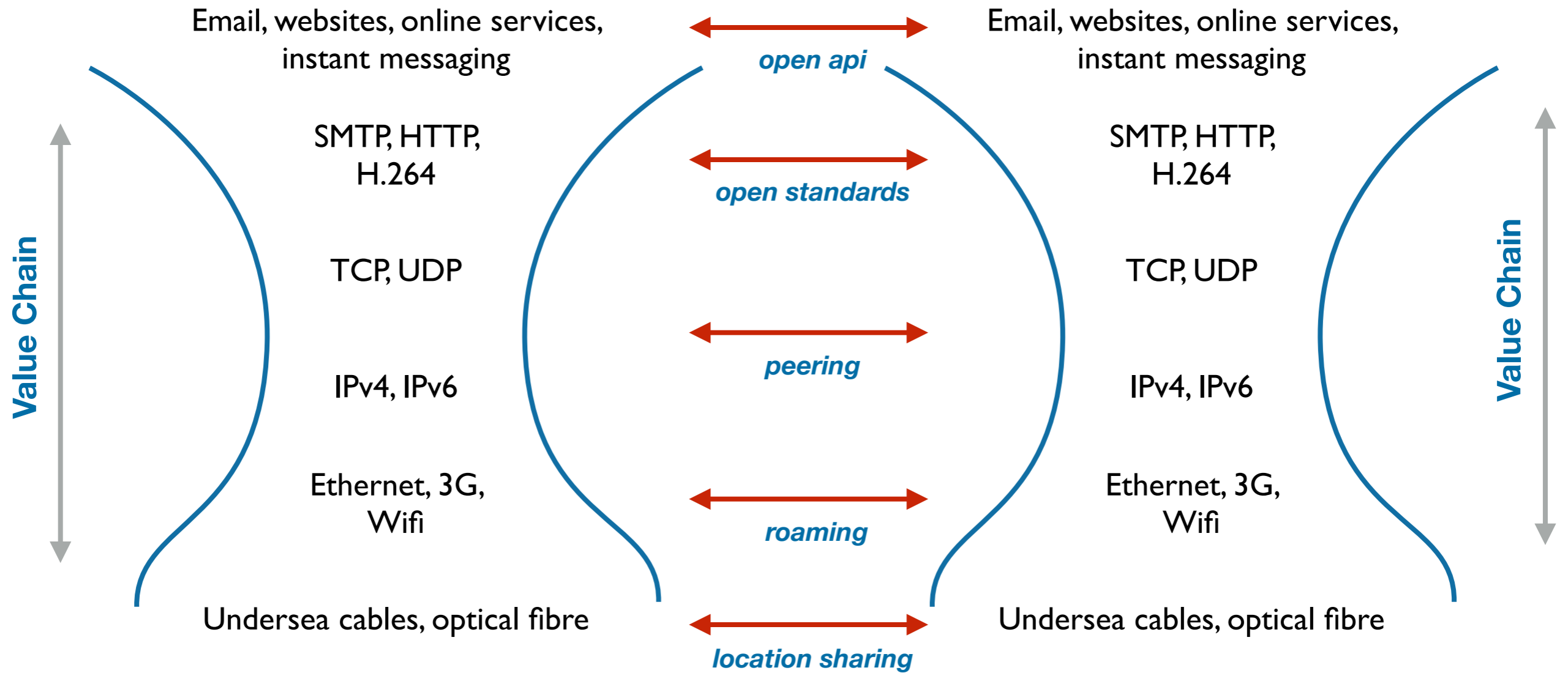
- Links exist between the different layers
  - Vertically
  - Horizontally
- Changes in one element can effect others that are part of a single (value) chain
  - Strict separation only exists in theory
- The Internet is a communications network
  - Everything you do will effect at least one other party
  - If you change, your peer has to change as well



(OSI model)



# Value Lies in Multiple Directions



- Business to Business (B2B)
  - You buy services to run your service
- Business to Consumer (B2C) - “Retail”
  - Customer buys your service to access other services
  - This also include cross-sector B2B - “Internet as a tool”
- Traditional model, driven by customer demand
  - Money is exchanged based on delivery of sevice

- It is complicated:
  - Relationships often only exist informally
  - Relationships are not always that visible
  - There might not be a direct relationship at all
- The money is made somewhere else
  - Most of the money is in the vertical chain
  - Horizontal chain is often considered a cost
    - Or considered a threat to own business

“The value of a telecommunications network is proportional to the square of the number of connected users of the system.”

Metcalfe's law



- Making a change will cost money
  - New tools (hardware, software)
  - New skills (learning material, access to training)
  - Lots of time
- You need a Return on Investment (ROI)
  - Making a change means taking a risk
  - Cost recovery needs to be:
    - Predictable
    - Reliable
    - Fast

Deploying IPv6 means making a change

- Dependencies exist in both directions
- Vertical value:
  - “My hardware does not support IPv6”
  - “My customers are not asking for it”
- Horizontal value:
  - “There is no content”
  - “There are no users”
  
- Isn't this all about money?

- Somewhere somebody needs to take the first step
  - IPv6 unfortunately lacks first mover advantage
    - The direct result of Metcalfe's law
  - Cost involved might turn it into a disadvantage
- Can we find a way of helping them?
  - Limiting their risk?
  - Limiting their cost?
  - Provide them with some ROI?

- We know the money flows vertically, but is that also where the value is?
  - Without the horizontal links, can we still make money?
- Can we remove the disadvantage?
  - Create a level playing field by all moving together

- There is no money to be made by deploying IPv6
- It has to come indirectly by growing the network
  - More users
  - More applications
  - More service providers
  
- IPv6 enables the market to grow
  - You will grow with it

- Work with your colleagues to align efforts
  - Make sure the IPv6 network gets big really fast
    - Increases cost recovery speed
    - Increases the net value of the network
  - Put pressure in the vertical chain
    - More people asking for IPv6 support

- The current value lies with IPv4
  - 20+ years of first mover advantage
    - Network is much bigger
    - Everything is tried and tested
- It has two fundamental problems
  - The network has stopped growing
  - The cost of running IPv4 will only go up
    - Where is your ROI on that?



When you are on an IPv4 only network,  
the only value you see is on IPv4  
(that doesn't mean there isn't anything else)

