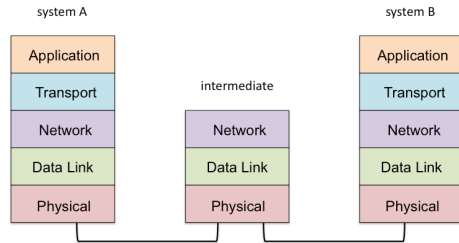


Networking is Inter-Process Communication (IPC) and only IPC

What's different?

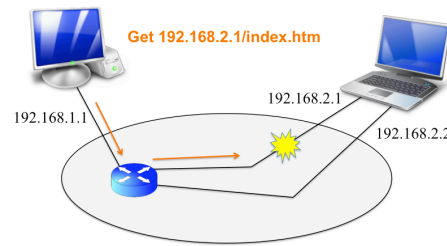
CURRENT INTERNET

- Functional layering, where each layer has the responsibility of a different function
- Fixed number of layers

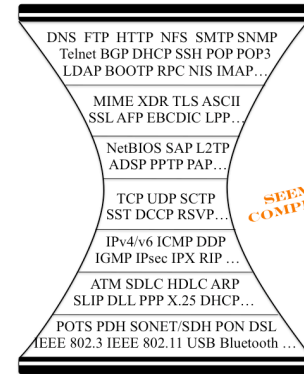


structure

- Routing on the interface (data link layer)
- Exposing addresses to applications
- Use of well-known ports
- Incomplete naming and addressing schema



routing



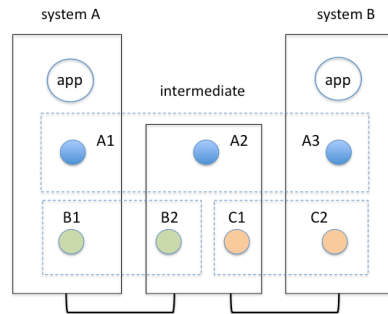
simplicity

- Lack of a security mechanism: A long list of threats and vulnerabilities
- Lack of a built-in mechanism to provide specific QoS: Only best effort service
- Exploding size of router tables
- Lack of a directory that maps applications to nodes

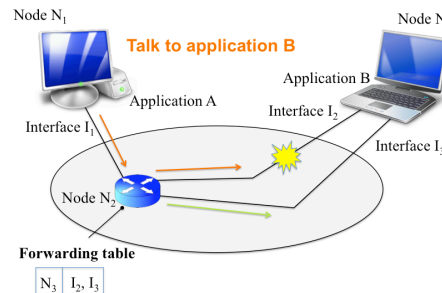
and more

RINA

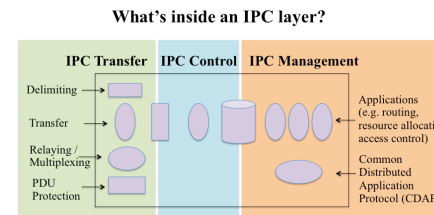
- A layer (DIF) is a distributed application that provides IPC services over a given scope
- Relative number of layers, each layer manages a range of bandwidth and QoS
- DIFs recurse providing IPC services to each other



- Routing on the node
- A complete naming and addressing schema
- Applications have an independent namespace
- Mobility and multi-homing are supported inherently



- Fundamental functions to provide communication
- Separation of mechanism and policy
- All layers use the same protocols but are configured differently through policy to achieve the desired service
- A single application protocol
- A single data transfer protocol



- Joining a DIF requires authentication, addresses are not exposed to the applications, well-known ports are not used, which results to a more secure network
- Each DIF can support a set of QoS cubes and provides an API to allow applications to request service with certain QoS parameters
- Each DIF has its own private internal addresses, which means that a global address space is not required
- Names for applications, nodes and Points of Attachments to the network exist, as well as a directory, mapping applications to nodes

A collaboration between:



What's coming next?

- Development of a first RINA prototype on top of TCP/IP
- Measurements and evaluation against the current Internet architecture
- Refinement of the current specification

Adoption, no migration!

