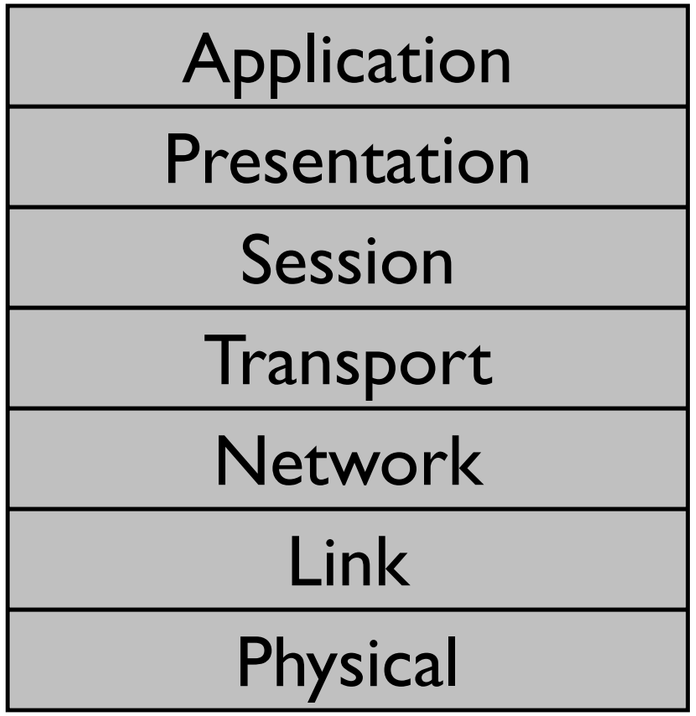
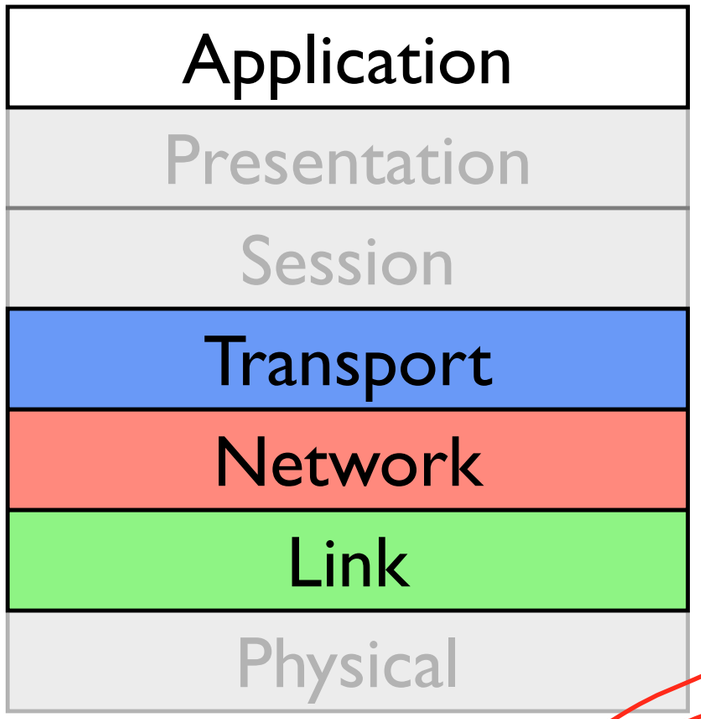
Principle: Encapsulation

Layering

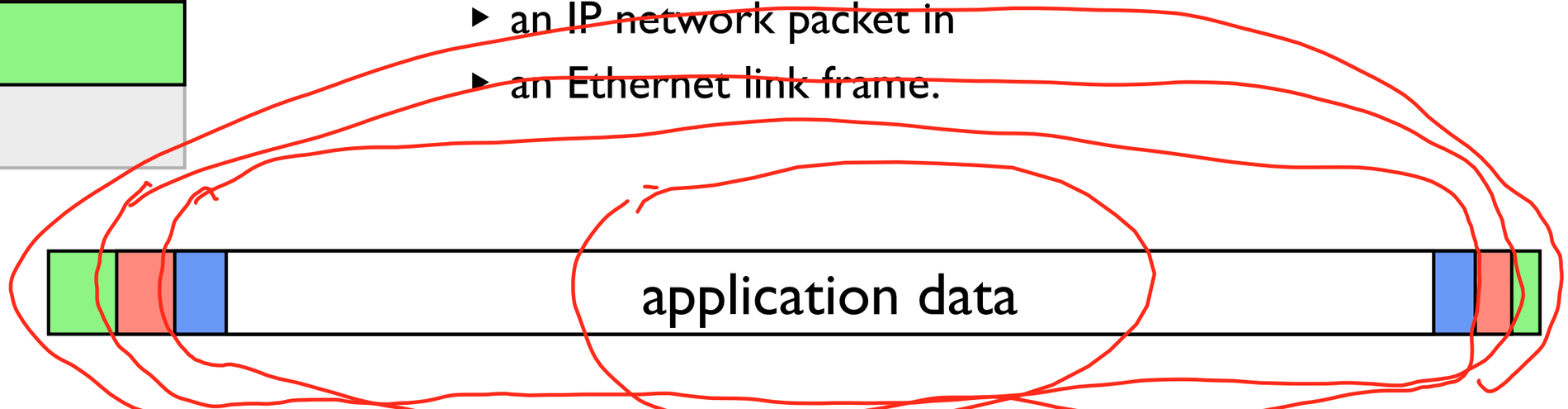


- Separation of concerns and responsibilities
- Allows each service to evolve independently
- Examples:
  - Transport: inter-application communication
  - Link: inter-host communication on a shared link

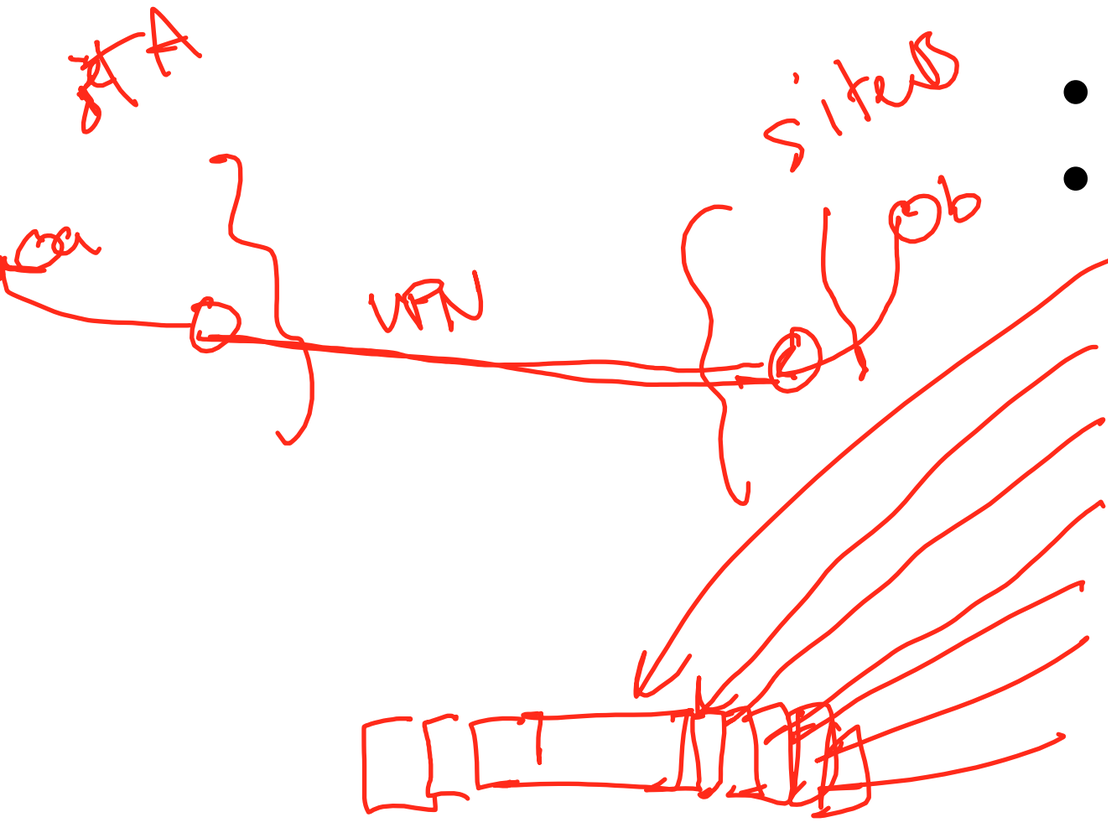
Encapsulation



- How layering manifests in data representation
- Layer N data is payload to layer N-1
- Example:
  - HTTP (web) application payload in
  - a TCP transport segment in
  - an IP network packet in
  - an Ethernet link frame.

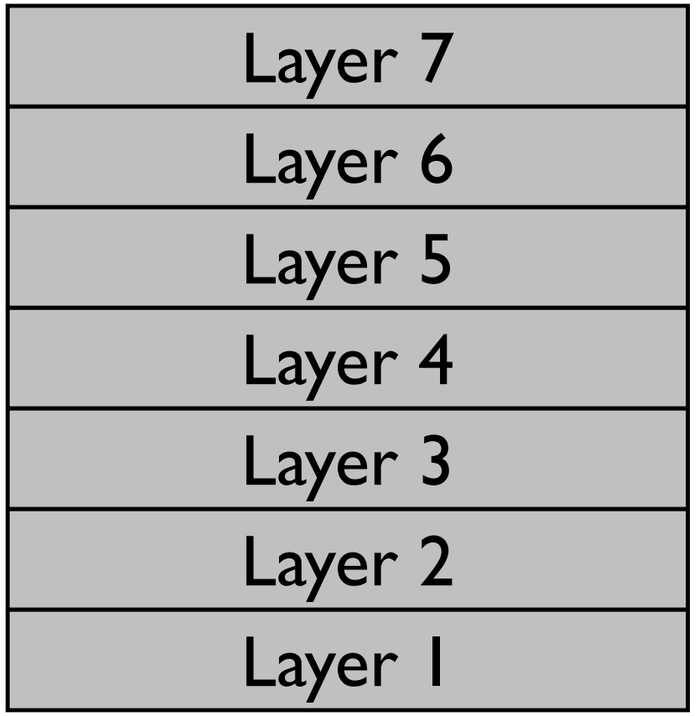


Encapsulation Flexibility



- Encapsulation allows you to layer recursively
- Example: Virtual Private Network (VPN):
  - HTTP (web) application payload in
  - a TCP transport segment in
  - an IP network packet in
  - a secured TLS presentation message in
  - a TCP transport segment in
  - an IP network packet in
  - an Ethernet link frame.

Encapsulation



- How layering manifests in data representation
- Encapsulated payloads
  - Help separation of concerns
  - Help enforce boundaries/layering
  - Simplify layer implementations