

# CS640: Introduction to Computer Networks

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Lecture 4 -  
Design Philosophy,  
Application Protocols and Performance

# The Road Ahead

- Design Philosophy
- Application protocol examples
  - ftp
  - http
- Performance
  - Delay
  - Bandwidth-delay product
  - Effective Throughput

# Internet Architecture

- **Background**
  - “The Design Philosophy of the DARPA Internet Protocols” (David Clark, 1988).
- **Fundamental goal: “Effective techniques for multiplexed utilization of existing interconnected networks”**
- **“Effective” → sub-goals; in order of *priority*:**
  1. Continue despite loss of networks or gateways
  2. Support multiple types of communication service
  3. Accommodate a variety of networks
  4. Permit distributed management of Internet resources
  5. Cost effective
  6. Host attachment should be easy
  7. Resource accountability