CONCORDIA UNIVERSITY
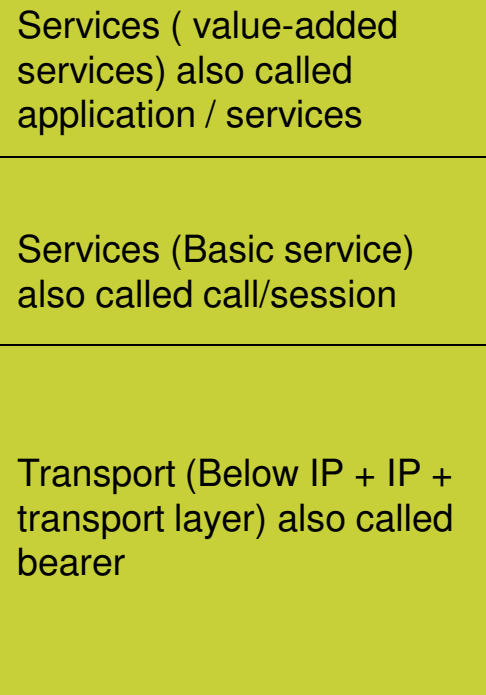Concordia Institute for Information Systems Engineering

Chapter III
ITU-T Next Generation Network Vision

Roch H. Glitho

Layering in next generation networks

Services (Basic services + value-added services)

Transport (Below IP + IP + transport layer)

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Layering in next generation networks

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|---|
| Services (value-added services) also called application / services |
| Services (Basic service) also called call/session |
| Transport (Below IP + IP + transport layer) also called bearer |

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Examples of technologies for next generation networks

- Transport technologies (Examples)
  - Wimax, long term evolution (LTE)
  - Impact all layers
- Call / session technologies (Examples)
  - SIP, H.323
- Value added services (or services technologies) - Examples
  - SIP servlets, Web services

The ITU-T Vision of Next Generation Networks
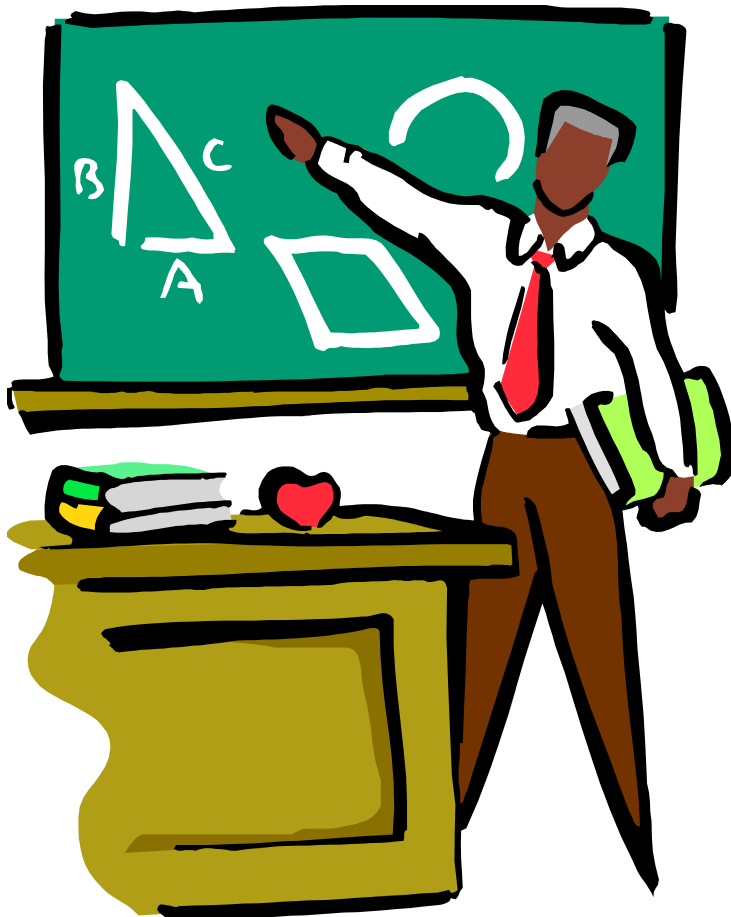
- **Fundamental characteristics**

- **Architectural framework**

Fundamental characteristics (or requirements, or design goals)

Categorization scheme used in this lecture

- Layer independent characteristics
  - Impact all layers
- Layer specific characteristics
  - Impact specific layers

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Fundamental characteristics (or requirements, or design goals)

Categorization scheme used in this lecture

- Layer independent characteristics
  - Business model
  - Separation of concerns
  - Regulatory issues
  - Inter-working with legacy

- Layer specific characteristics
  - Network capacities
  - En-user services and their provision

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Fundamental characteristics

Layer independent characteristics

- Business model
  - Unrestricted access to different service providers
    - Has a lot of implications
      - Plug and play by end – users when it comes to subscriptions
      - Last mile from provider A
      - Internet access from provider B
      - Telephony services running on the last mile from provider C
      - Streaming services running on last mile from provider D

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Fundamental characteristics

Layer independent characteristics

- Separation of concerns
  - Separation of control functions between bearer, call/session and application / service
  - Decoupling of service provision from transport and provision of open interfaces
  - Independence of service related functions from underlying transport technologies

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Fundamental characteristics

Layer independent characteristics

- Compliance with all regulatory issues
    - Emergency communications
    - Lawful interception
    - Security

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Fundamental characteristics

Inter-working with legacy

- Through open interfaces

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Fundamental characteristics

Layer dependent characteristics

- End-user services and their provision
  - Support of a wide range of services, applications and mechanisms based on building blocks
  - Generalized mobility (terminal, end-user and services)
  - Unified characteristics for the same service as perceived by the user
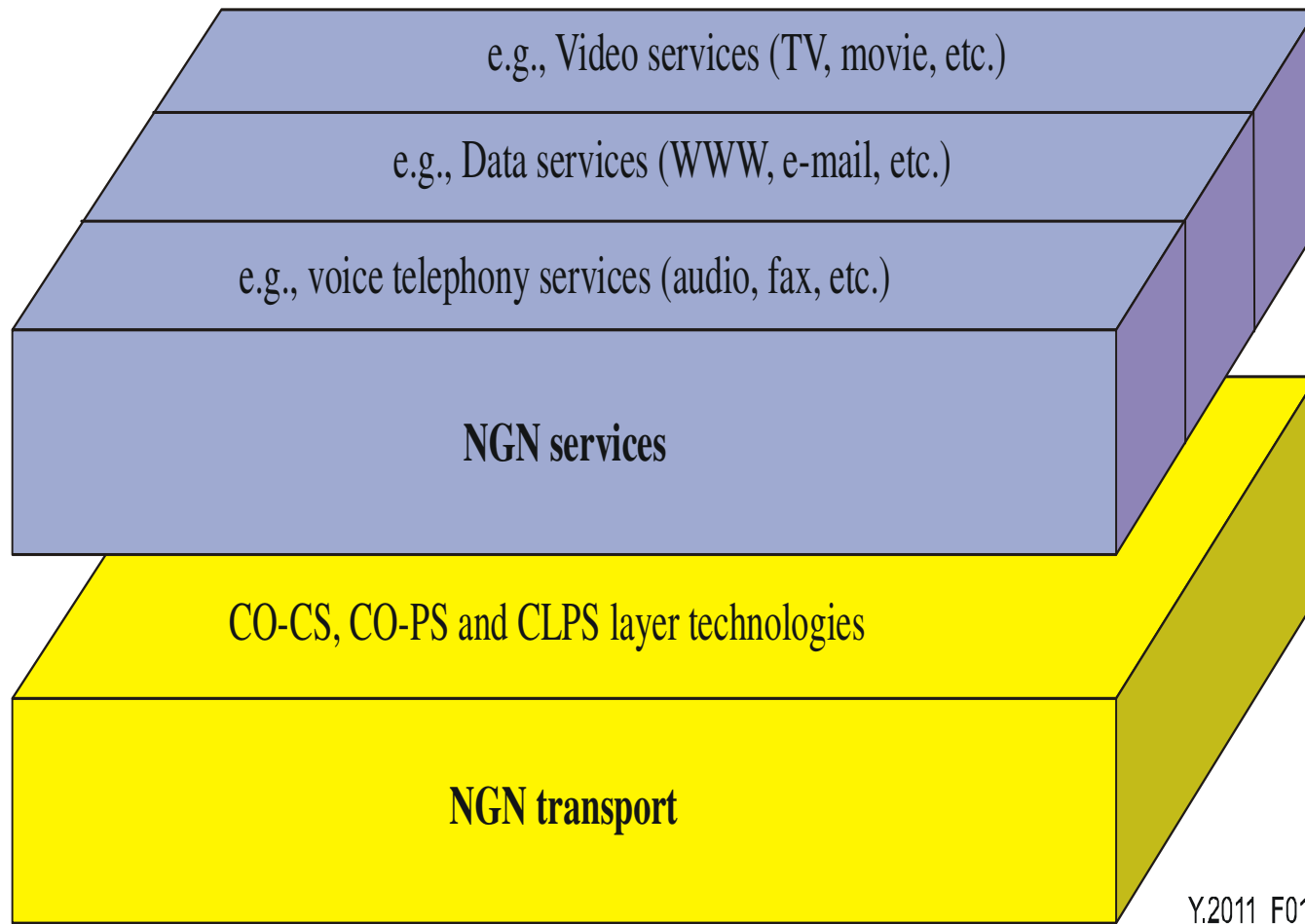 - Converged services between fixed and mobile

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Fundamental characteristics

Layer dependent characteristics

- Transport and service layer

  – Broadband

  – Multiple last mile technologies
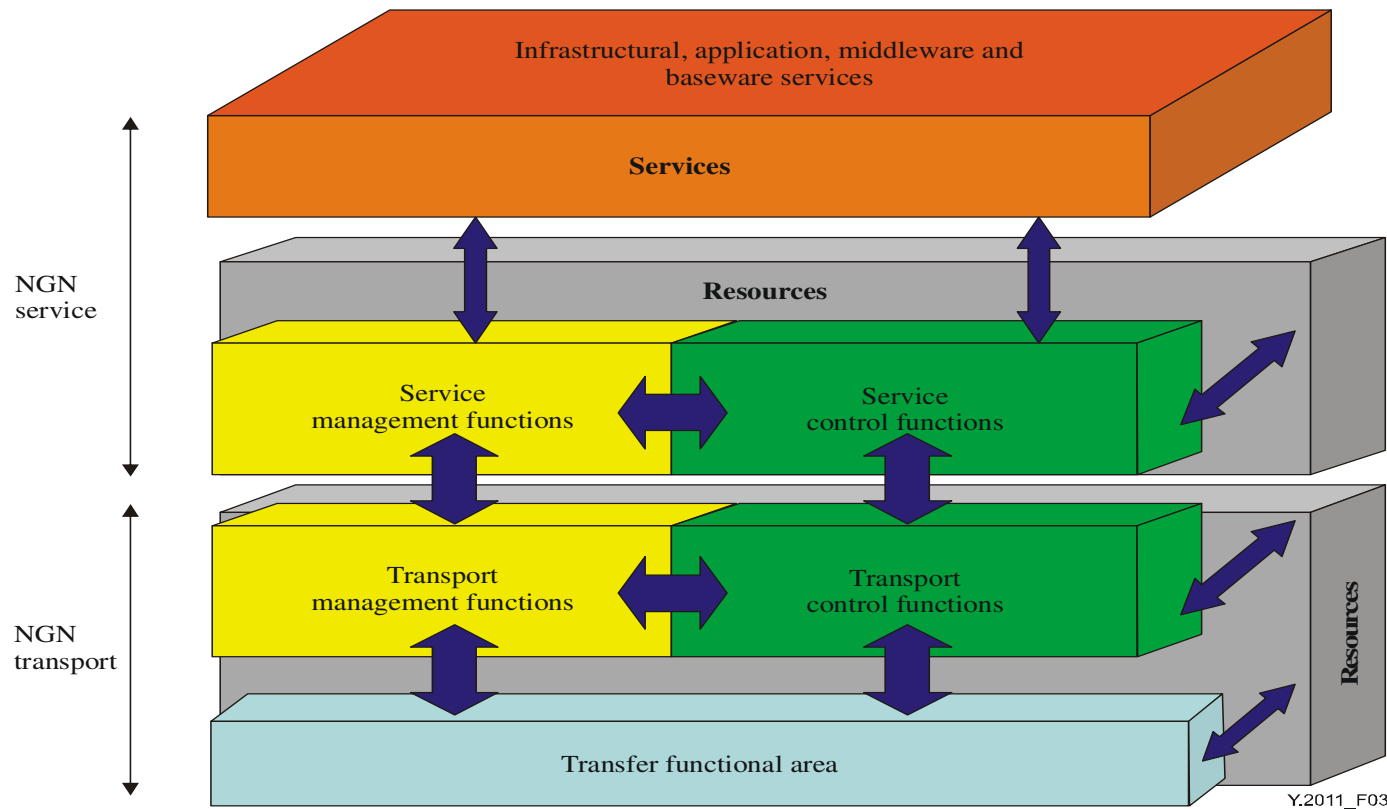
  – Packet based transfer

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Architectural framework
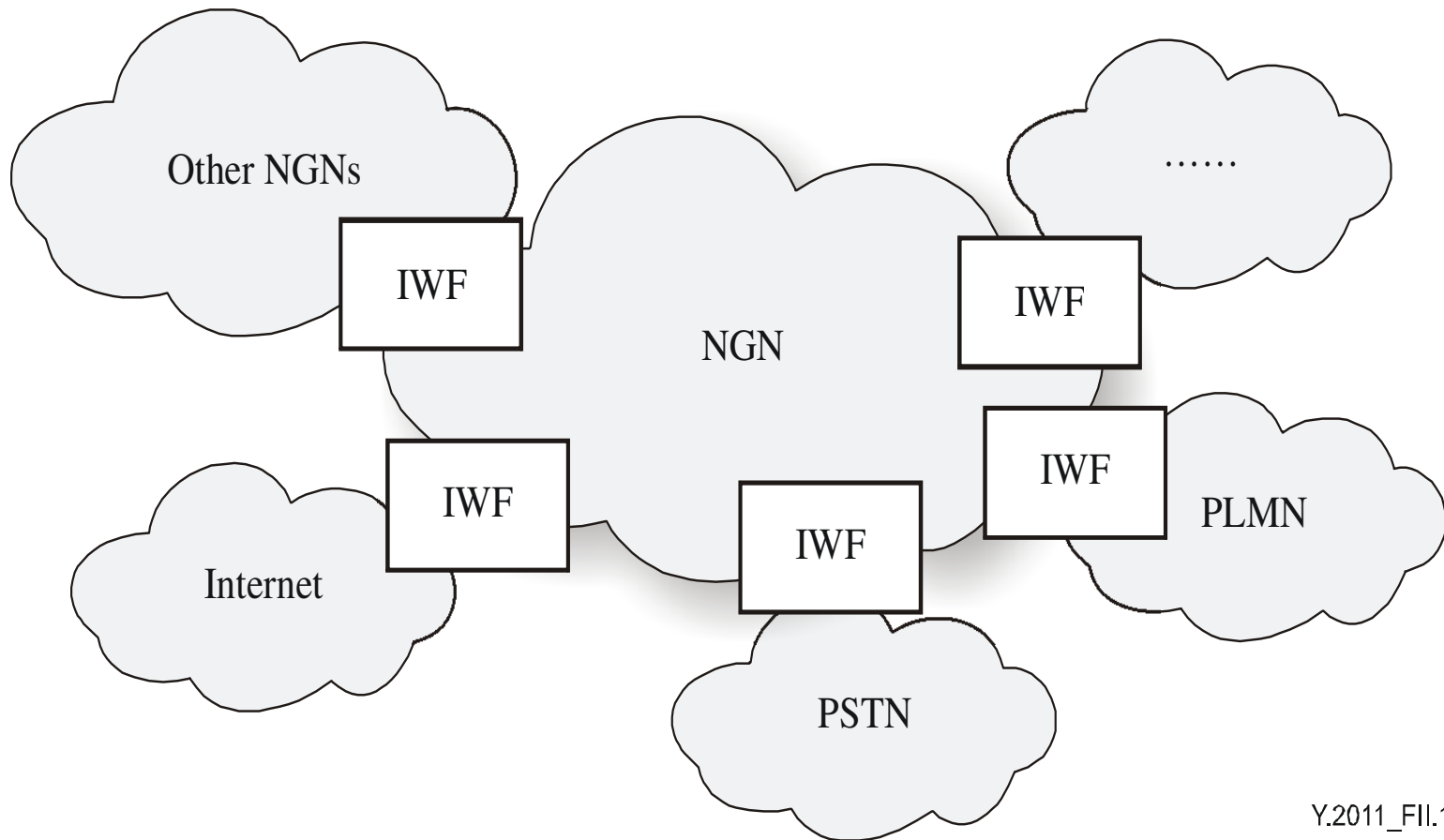
e.g., Video services (TV, movie, etc.)

e.g., Data services (WWW, e-mail, etc.)

e.g., voice telephony services (audio, fax, etc.)

NGN services

CO-CS, CO-PS and CLPS layer technologies

NGN transport

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Architectural framework

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Architectural framework

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