NGN based IPTV

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Requirements for Commercial IPTV

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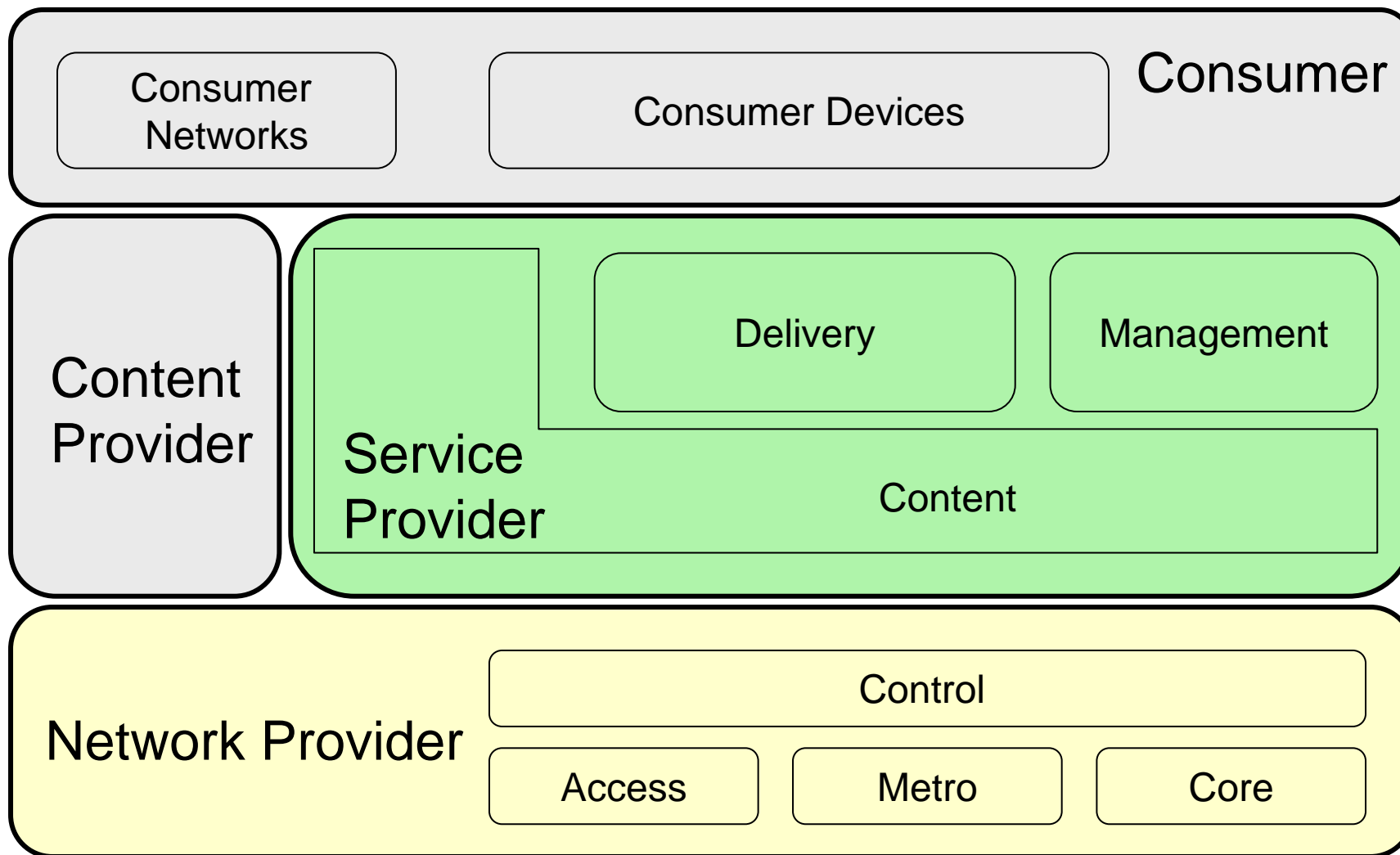
- Open architectures and multiple service environments, easy to provide new services and convergence services
    - Communications services
    - IPTV, e.g. LTV, VoD, PVR, TsTV ...
    - Convergence services
- Common underlying network control and E2E QoS mechanisms
- Unified user profile management
- Unified charging and billing
- Support for multiple access technologies and different types of end devices
- Support for mobility (roaming/nomadism)
- ...

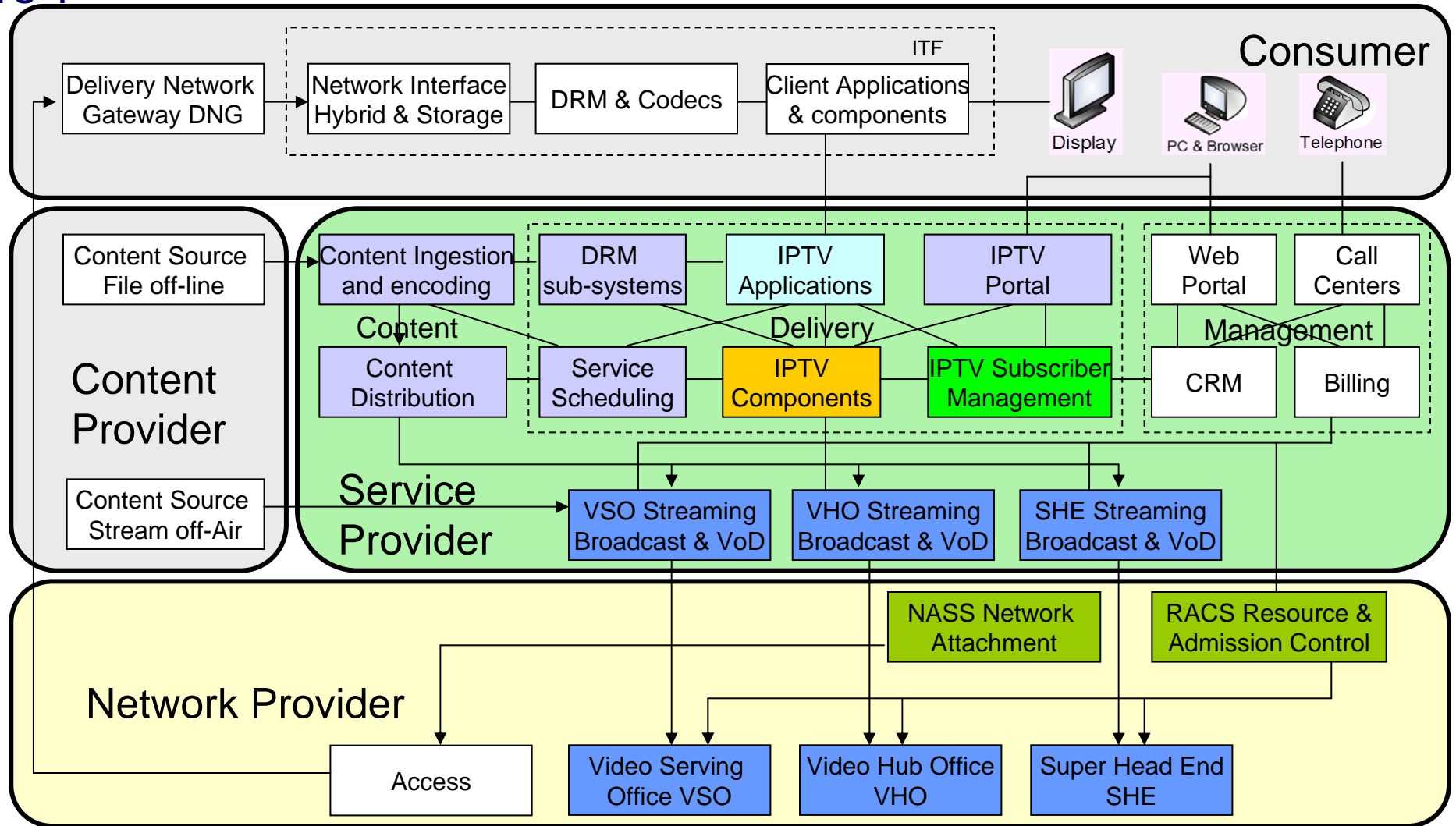## NGN could be an ideal foundation architecture for IPTV

IPTV domains

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Consumer

Consumer Networks

Consumer Devices

Content Provider

Service Provider

Delivery

Management

Content

Network Provider

Control

Access

Metro

Core

IPTV Functional Blocks

Consumer

| Delivery Network Gateway DNG | Network Interface Hybrid & Storage | DRM & Codecs | ITF Client Applications & components | Display | PC & Browser | Telephone |

Content Provider

Content Source File off-line

Content Source Stream off-Air

Service Provider

Content · Delivery · Management

| Content Ingestion and encoding | DRM sub-systems | IPTV Applications | IPTV Portal | Web Portal | Call Centers |

| Content Distribution | Service Scheduling | IPTV Components | IPTV Subscriber Management | CRM | Billing |

| VSO Streaming Broadcast & VoD | VHO Streaming Broadcast & VoD | SHE Streaming Broadcast & VoD |

Network Provider

| NASS Network Attachment | RACS Resource & Admission Control |

| Access | Video Serving Office VSO | Video Hub Office VHO | Super Head End SHE |

IPTV architecture based

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providing IPTV supporting functions:
- IPTV Portal
- DRM sub-systems
- Service scheduling
- Content Ingestion and coding
- Content Distribution
- Others

common enablers to be shared : Location, Presence , Message etc.

Applications

ANI

Application Support Functions & Service Support Functions

common subsystems and components to be shared

Service User Profiles

Service Control Functions

Service stratum

Management

Network Attachment Control Functions

Transport User Profiles

Resource and Admission Control Functions

End-User Functions

Transport Control Functions

Transport Functions

UNI

providing IPTV service control functions:
- Registration, authentication, authorization
- Session control
- Media distribution and delivery control
- Service trigger and routing
- charging
- Roaming/nomadism management
- Handover control
…

could be a dedicated IPTV service control component or Extend IMS core to support IPTV Service control

Transport st

- - - - - - Control
▨▨▨ Media
■ ■ ■ ■ Management

Access agnostic media distribution & E2E media delivery …

represent any speci

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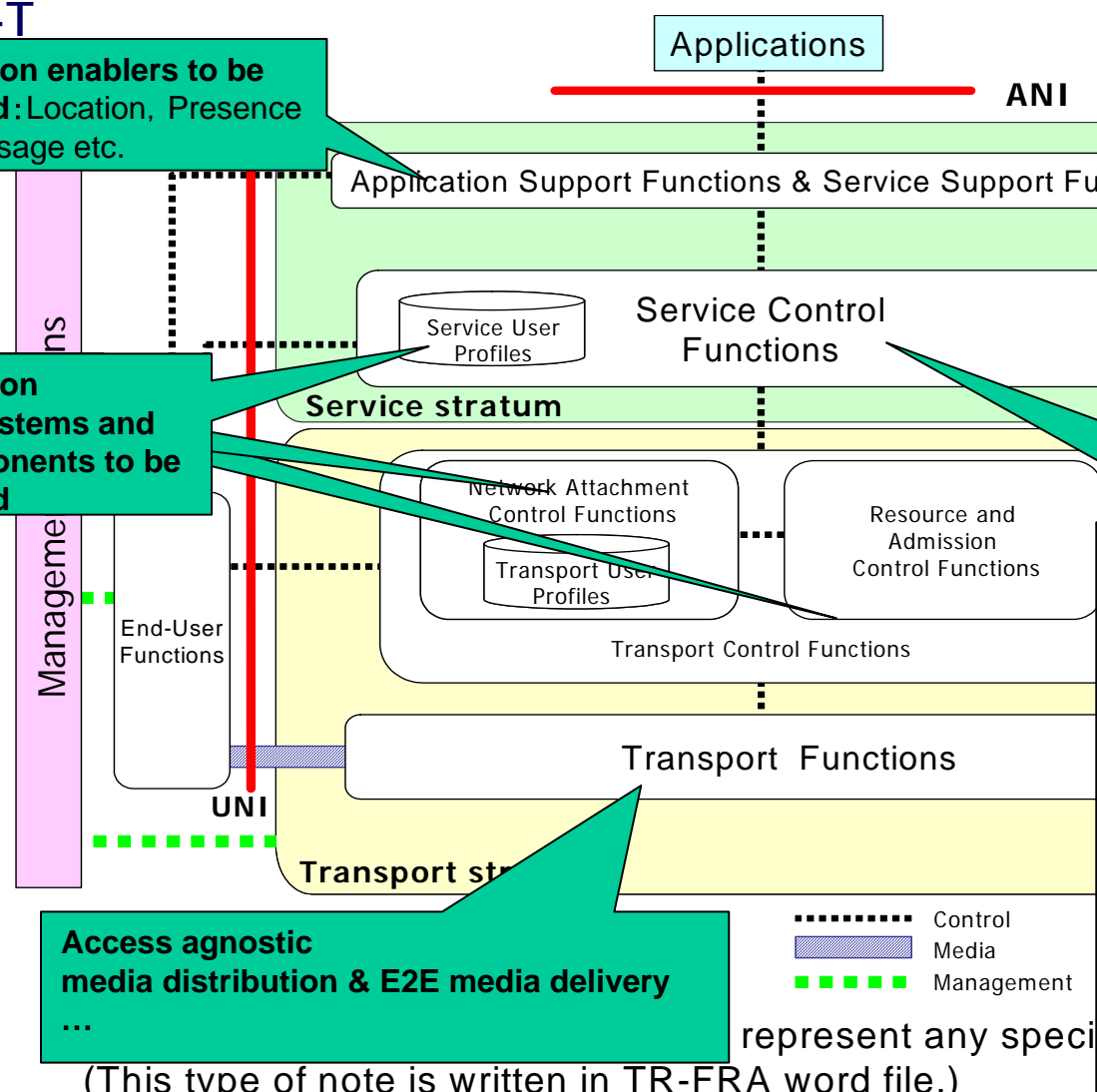
o IPTV general architecture based on NGN

- Two possbile approaches to IPTV service control functions
  - Develop a dedicated IPTV service control component
  - Extend IMS core to support IPTV service control

- No matter which approach is to be adopted, the IPTV supporting functions which exist in traditional IPTV systems can be largely reused.
  - Including IPTV Portals, DRM sub-systems, service scheduling, content Ingestion and coding, content distribution, etc.
  - Can be implemented as a class of service enablers
  - Can interact with existing enablers: location, presence, etc.

o IPTV general architecture based on NGN (cont)

- Common subsystems and components to be shared wherever and whenever it is appropriate and economical
  - e.g. unified user profile, NACF, RACF etc.
  - Subject to enhancement according to IPTV specific requirements, e.g. multicast control.

- Access agnostic
  - Support for various access technologies, e.g. DSL, 3G, DVB-T/H etc.
  - Different access technologies share the common IPTV service control functions and the common applications&services supporting functions.
  - Adaptation may be needed for different access technologies.

o Streaming media services, e.g. VoD

- • Session c
  - —RTSP
  - —SIP,
- • VCR-li
  - —RTSP
  - —SIP ex
    plane

Three possible approaches:
(1)Using RTSP for both session control and VCR-like control
(2) Using SIP for both session control and VCR-like control
(3)Using SIP for session control, RTSP for VCR-like control

2,3 are applicable when IMS is used for IPTV service control

o Broadcast/multicast services, e.g. LTV

- Session

  – IGM

  – SIP

- Chan

  – IGM

  – SIP

> **Three possible approaches:**
> (1)Using **IGMP** for both session control and channel zapping
> (2) Using **SIP** for both session control and channel zapping
> (3)Using **SIP** for session control, **IGMP** for channel zapping
>
> 2,3 are applicable when IMS is used for IPTV service control

Issues related to NGN/IMS based IPTV

o IPTV bearer control, multicast and QoS
- Identification of the possible impacts on transport layer, e.g., NACF, RACF

o Content/media distribution and delivery
- An important function of IPTV services, should be thoroughly studied.
- May have impacts on existing entities, e.g., MRF (When used as media server).

o Service interaction/convergence
- On the terminal side, e.g., STB
- On the network side, e.g.,service broker

o Roaming/nomadism
- Both service and content are provided by the home network.
- Service is provided by the home network whilst content provided by the visited network.