

# IPR Investigation Process: DReaM-CAS

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# Conditional Access System (CAS) IPR Investigative Steps

1. Define IPR Scope & Fields of Interest
2. Taxonomy, Old & New IPR Investigation
3. CAS Reference Models and Use Cases
4. Examine (3) & DReaM-CAS in light of (1) and (2)

*Note: Focus of talk is “CAS” – Investigative process for DReaM-MMI and DReaM will be the same*

# 1. IPR scope and fields of interest

## *CAS Intellectual Property Mining:*

- Primary intellectual property areas
  - > Expired and active patents
  - > Public domain publications and disclosures
  - > Fielded CAS systems and associated products
  
- Primary intellectual property landscape
  - > Broadcast/Broadband (cable, satellite, pay TV)
  - > Computer systems and networking

## 2. Taxonomy, Old IPR & New IPR

*Wish to categorize CAS IPR by the teachings of references found - “taxonomize”*

*Useful to split the IPR space into two categories:*

- Old IPR
  - > Roughly mid 1970’s to mid 1980’s for expired patents
  - > Forms the basis of freely available IPR
- New IPR (current/existing IPR)
  - > Focus is claims of active patents
  - > Investigate for potentially encumbering IPR

# 3. Define CAS Reference Models & Examine Use Cases

- Reference Models
  - > Enables examination of architectural and component relationship factors
- Use Cases
  - > In conjunction with above, enables examination of functional and sequential/temporal factors
- Goals
  - > Characterize fundamentals of scope of CAS technology against IPR taxonomy found for Old and New IPR
  - > Understand DReaM-CAS use case environment and bounds in light of IPR findings

# Example Reference Model & Use Case Characteristics to Examine

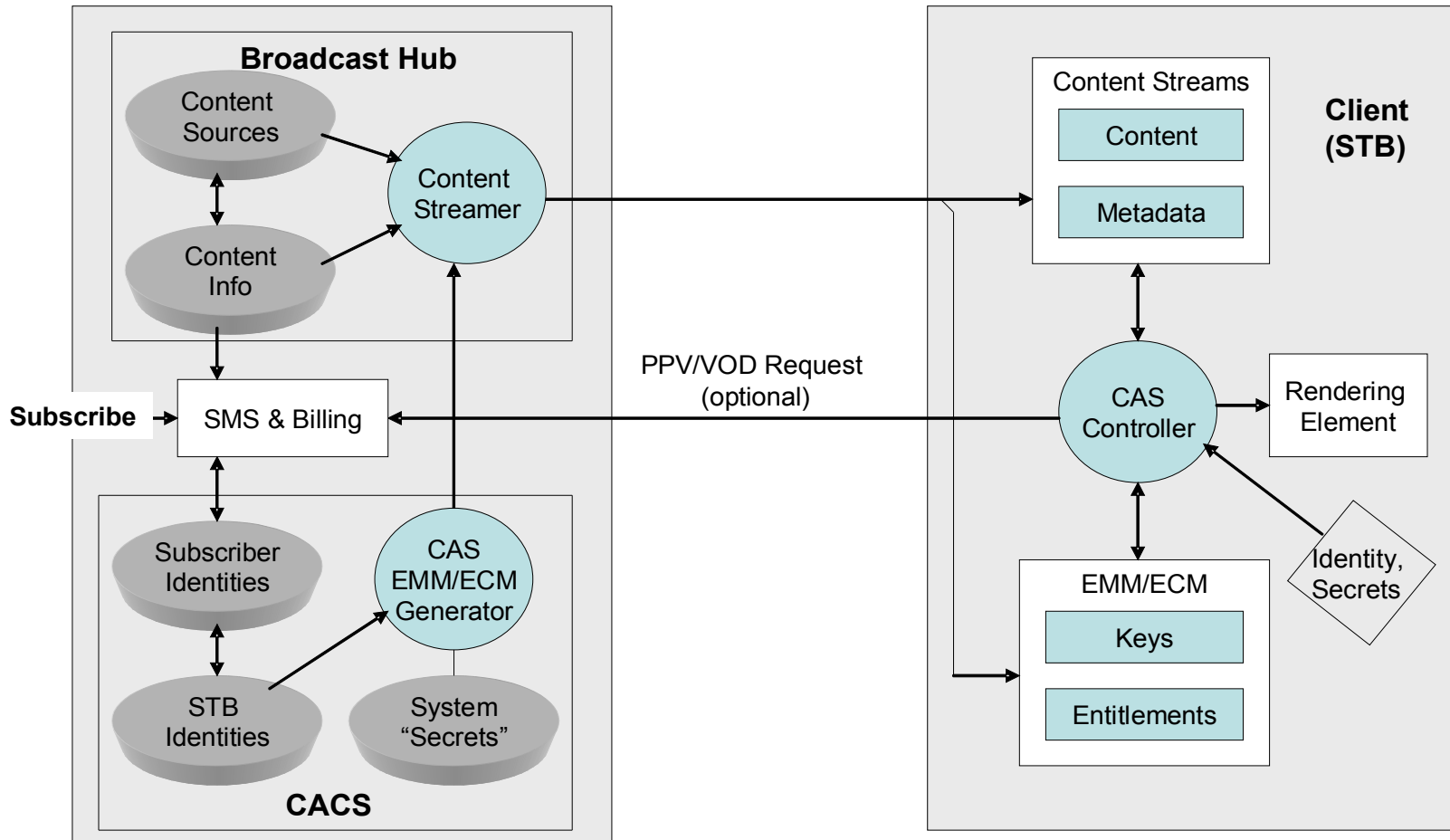
- Broadcast vs. Narrowcast or Point-to-Point
- Multiple/Simultaneous channels/programs?
- Authorization/Entitlement methodologies
- In Band vs. Out of Band communications
- One-way vs. Two-way communications
- Trust Infrastructure & Trust Domains
- Streaming vs. File oriented Content
- Storage (& storage locations) vs. Real-Time, including persistent security needs

# Reference Model & Use Case Characteristics to Examine (cont)

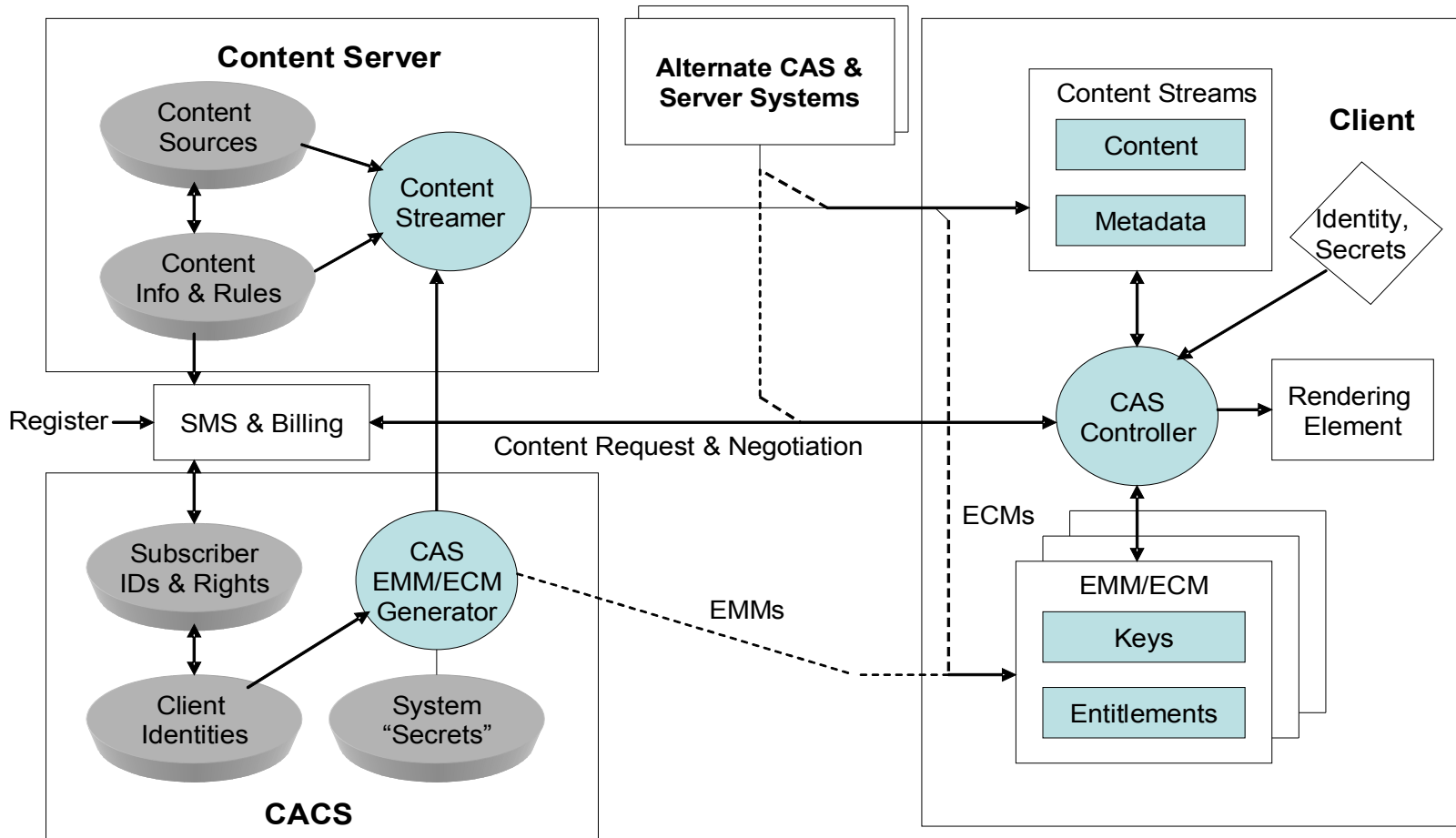
*Lower level issues:*

- Key hierarchy and Key management
- Authentication and Integrity of communications
- Subscription, PPV, IPPV, NVOD, VOD
- Forensic Marking (fingerprinting, watermarking)
- Content movement & Copy Protection
- Removable, Replaceable, Downloadable Security

# Figure 1 - Broadcast Conditional Access Reference Model



## Figure 2 - Generic Conditional Access Reference Model





# DReaM-CAS IPR Investigation Status

- Over 1000 conditional access related active and expired patents examined and (if of interest) taxonomized.
- Thirty years of fielded CAS systems have been identified and described.
- CAS IPR applicable to the broader DRM space is being grouped by (DRM) taxonomy category in parallel with CAS investigation - Next step: DReaM and DReaM-MMI investigation.

PROJECT  
**DR****OM**

The word "PROJECT" is in a blue, sans-serif font. Below it, the word "DREAM" is rendered in large, blue, 3D block letters. The letter "E" is replaced by a white globe with a grid pattern, and the letters "ea" are written in a yellow, stylized font across the globe.

Thank You