
CCNC 2005 – DRM Workshop



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Network Centric Mobile DRM for Multimedia Content

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The Mobile Media and Entertainment has arrived...

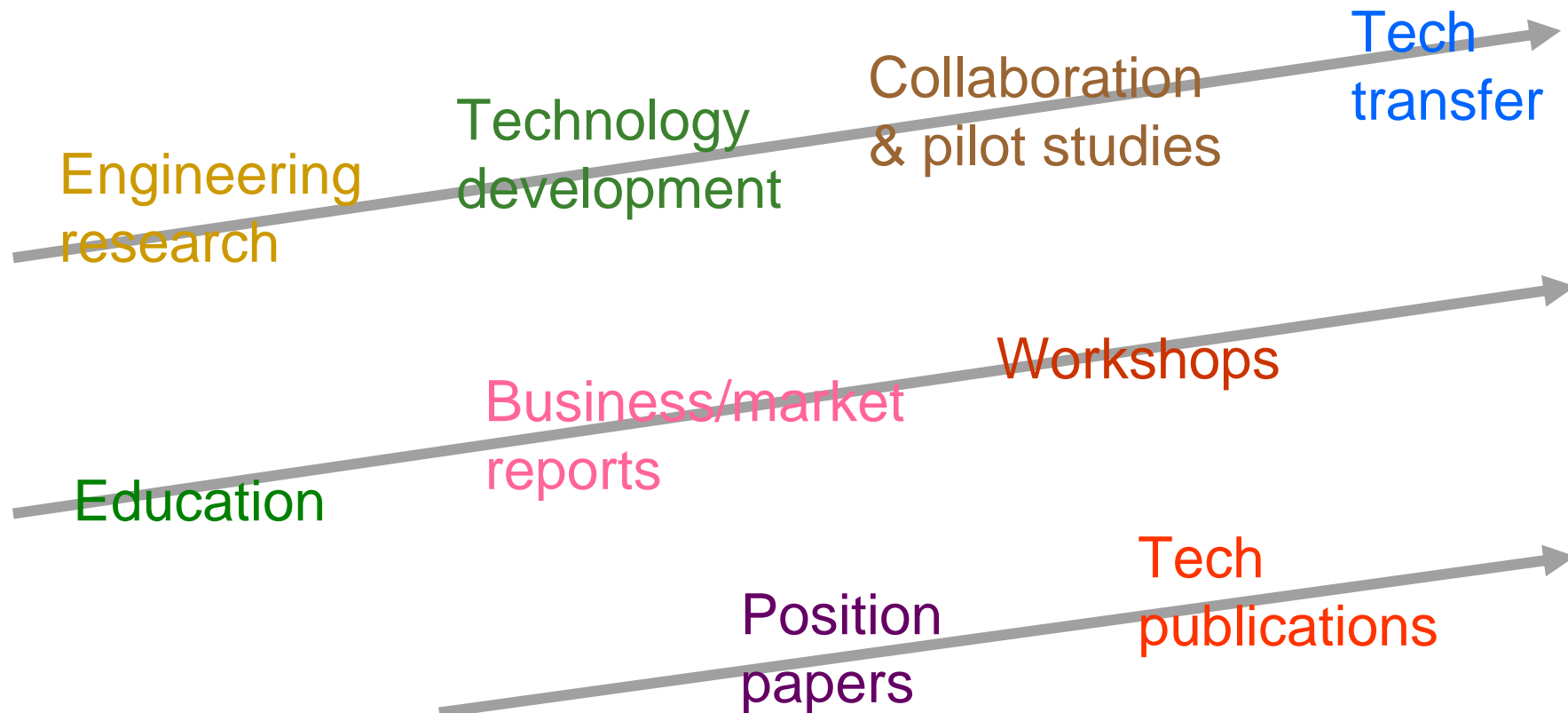
- Multiple, multi-modal, multi-protocol, multi-frequency wireless networks that link to a variety of devices that:
 - Are mobile
 - Are personal
 - Have ubiquitous and seamless coverage
 - Provide applications and data continuously
 - Extend the range of communication and entertainment channels
- Mobile DRM Challenges and Opportunities
 - Privacy vs. Piracy – secured and non-interfering
 - Business Models - consumer experiences
 - Interoperability on mobile devices
 - P2P network

Benefits

***Challenges
&
Opportunities***

WINMEC - what we do

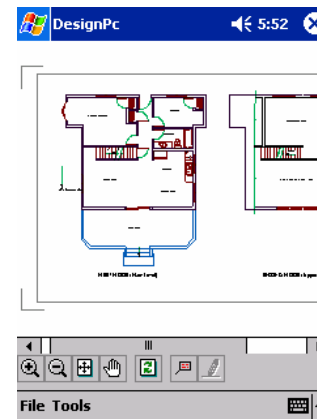
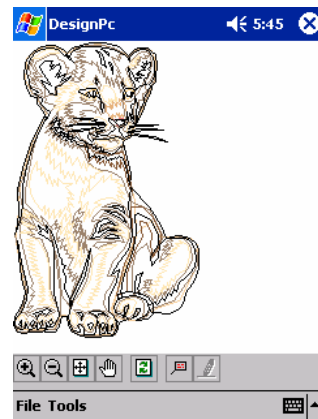
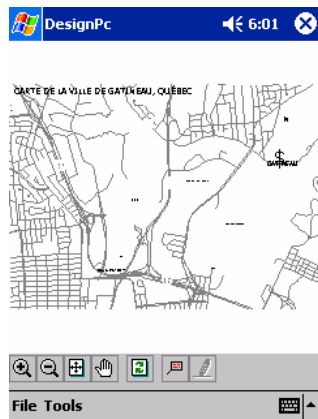
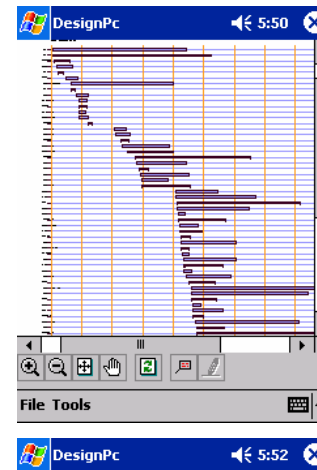
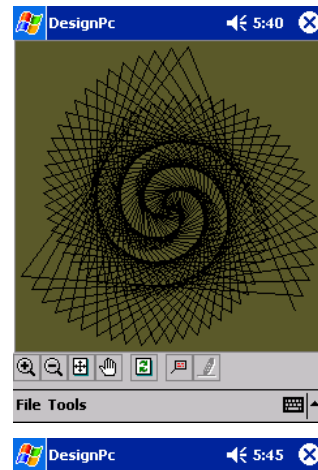
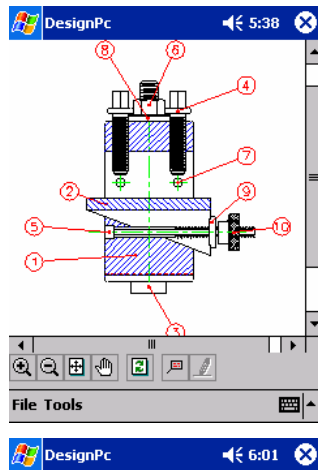
An industry-university-government partnership to innovate and collaborate on Wireless Internet Technologies for Enterprise and Consumer Applications



WINMEC Research Areas - Multimedia

- Mobile Multimedia Collaboration for wireless resource constrained devices
 - 3D data transmission on bandwidth-constrained wireless networks
 - Middleware issues
 - Real-time Transcoding
 - Multi-media streaming
- DRM or Digital Rights Management in mobile and wireless environments
 - OMA DRM solutions
 - P2P network-based DRM
 - Revenue models
 - Middleware approach to DRM

Mobile Multimedia Environment (MobIME) for Collaboration – Vector Graphics, Images, Video



Status :

- 2.5 G/ 3 G
- Small client - PocketPC
- Incremental downloads (smart client server interaction)
- Supports multi-form factor devices
- Incorporate device and network constraints
- Implemented SVG DOM, basic shapes, path, transformation and CSS (Cascading style sheets)
- DRM issues

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Network Centric Mobile DRM for Multimedia Content

■ Features

- ❑ Non-intrusive network centric DRM monitoring
- ❑ Hardware and OS based approach
- ❑ Just-in-time decryption (JID)
- ❑ Two prone approach

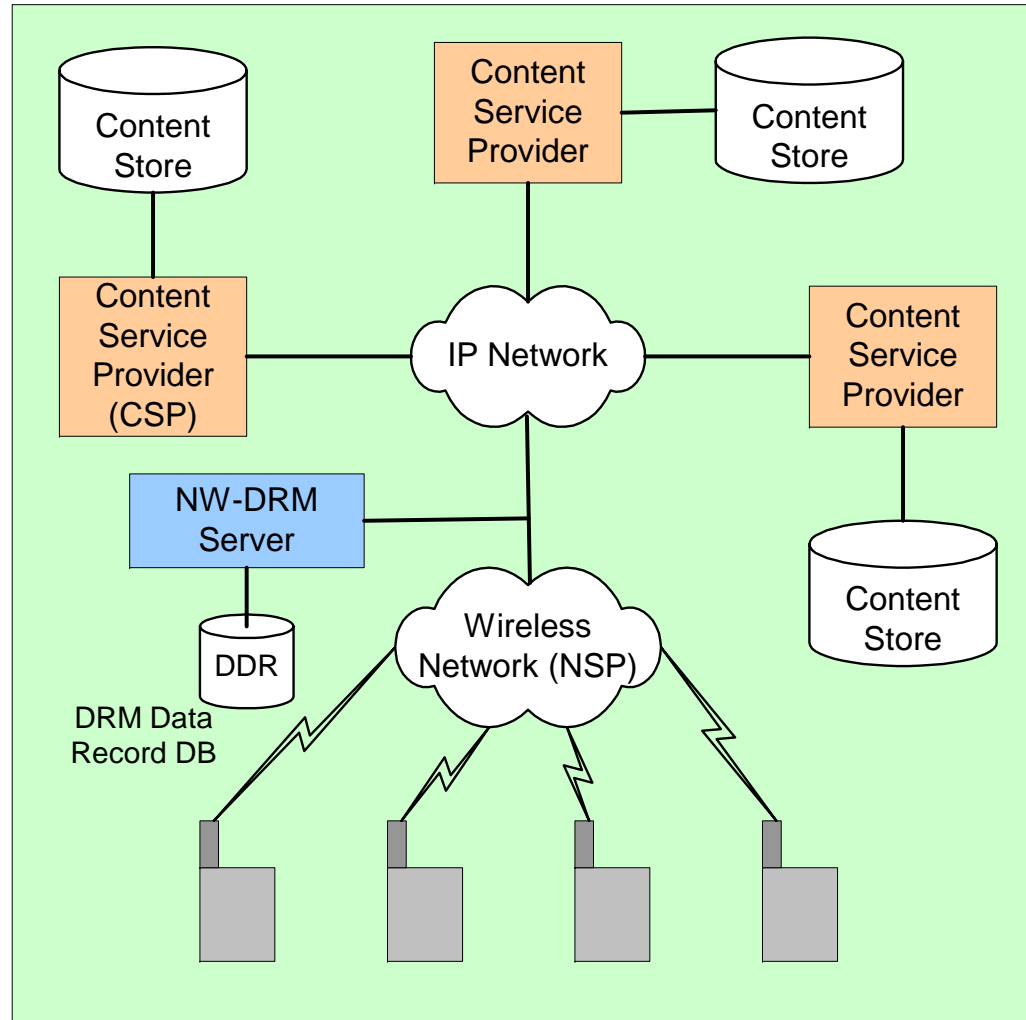
■ DRM Monitoring

- ❑ recording DRM transaction messages sent through a secured DRM channel

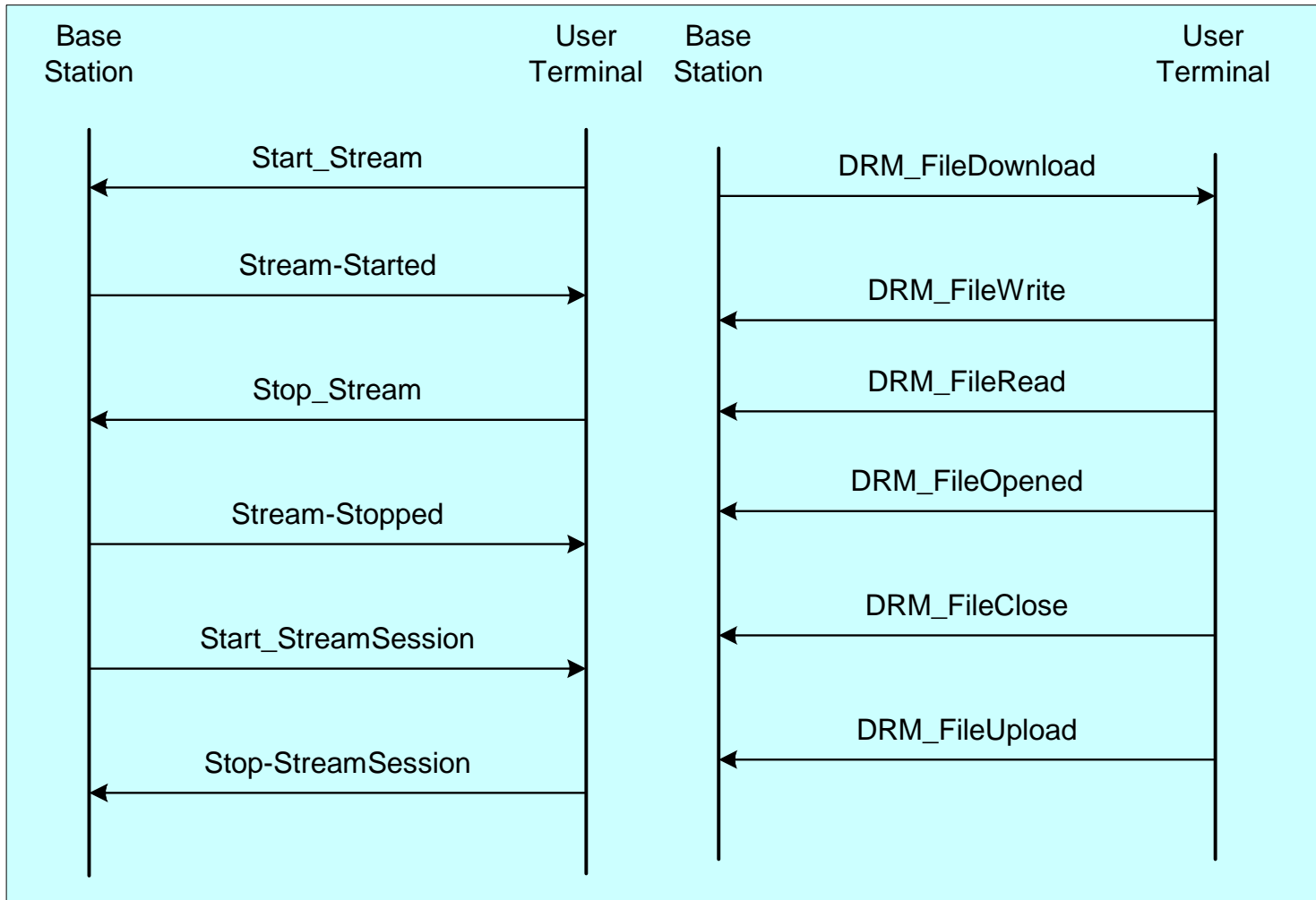
■ DRM Enforcement

- ❑ embedding digital rights enforcement codes along with a key into the encrypted content

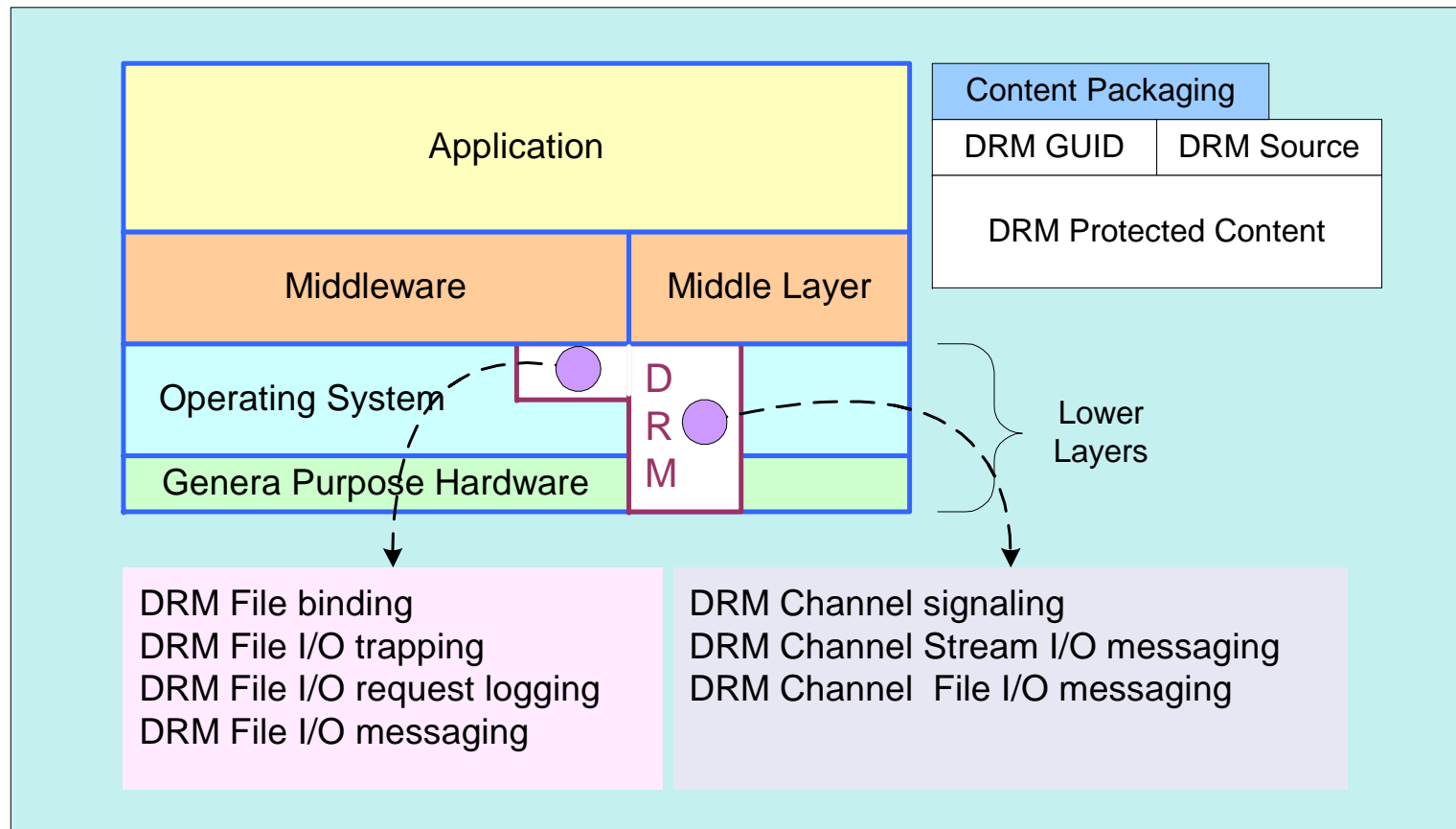
Network Centric Architecture



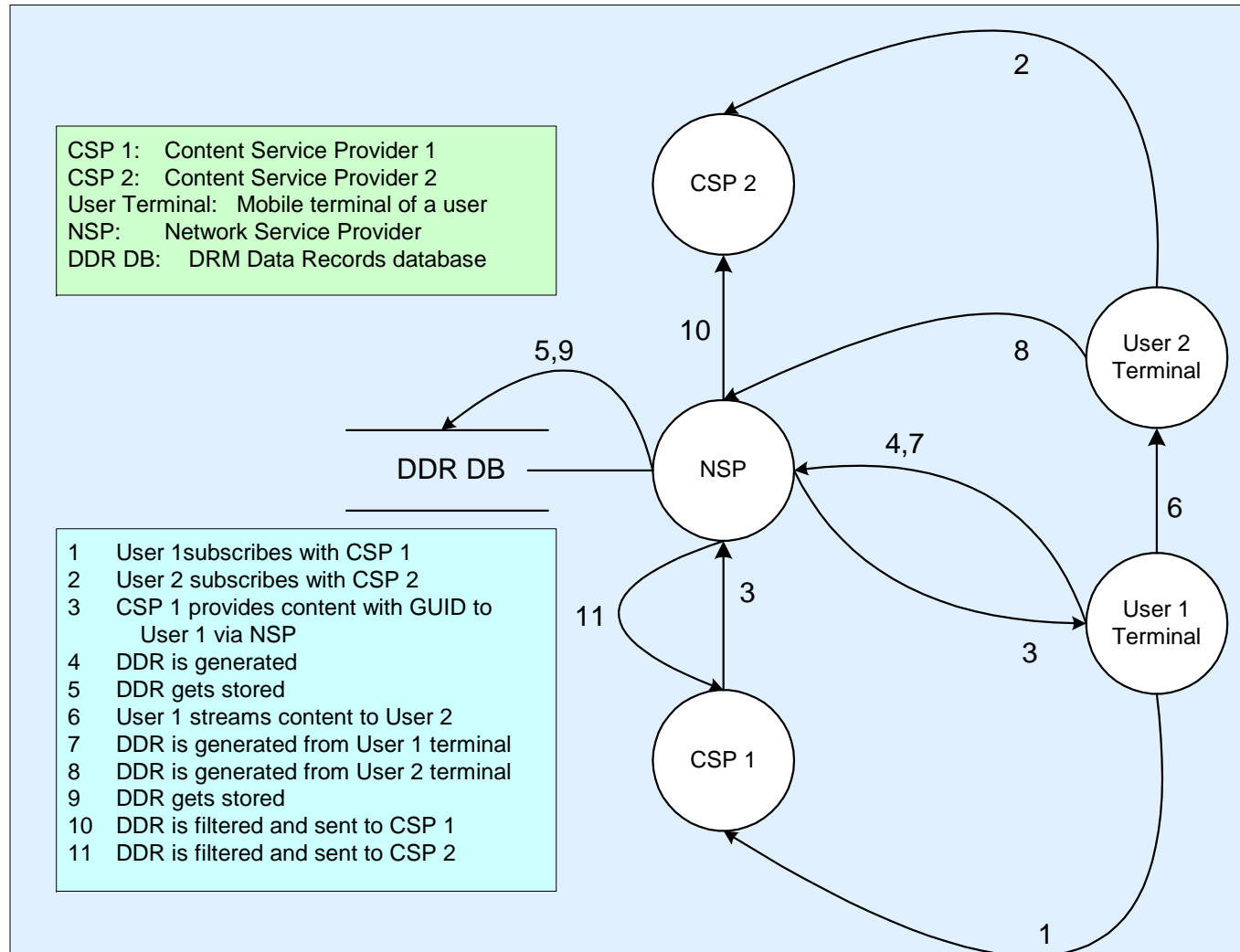
DRM Channel Messages



OS and Protocol Stack Support for DRM



Call Flows



Summary

- WINMEC Multimedia Entertainment Research
- Hardware and OS based, two prone DRM approach:
 - DRM monitoring
 - DRM enforcement
- Network Centric Architecture
- FPGA-based JID