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Agenda

- DivXNetworks, Inc., introduction and overview.
- Solving the broadcast flag problem with DivXNetworks technology.
- More details into the technology.
- Demo and Q&A.

Objective: Present DivXNetworks technology as solution to the Broadcast Flag.



DivXNetworks, Inc. Information

- DivXNetworks, Inc. is a technology company.
 - Video Compression up to High Definition (1080+).
 - Video Security and Digital Rights Management (DRM).
 - Internet Video on Demand (VOD) System.
 - DivX Certified® Program for Consumer Electronics (CE).
- DivXNetworks, Inc. earns revenue from several business units.
 - Software Licensing – Consumer and Commercial.
 - Hardware Licensing – IC/ODM/OEM, DVD, Portable, DVC/DSC, STB
 - Video Solutions Group – DivX VOD Service, DivX VOD Platform, Professional Services
- DivXNetworks, Inc. has several highlights.
 - Started Sept 2000, VC funded, now over 100 employees, cash flow positive and profitable since Q4 of 2003. Own DivX™.
 - Headquarters in San Diego CA with offices in Germany, Japan, Taiwan, London, Los Angeles and San Jose CA
 - 120+ million users of DivX codec and player bundle from DivX.com.
 - 150+ commercial & consumer electronics licensees.
 - Running Internet VOD service since Aug 2001 w /over 34 content partners.

DivXNetworks named in World's Top 100 private technology companies 2003, 2004



DivX Certification and Consumer Electronics

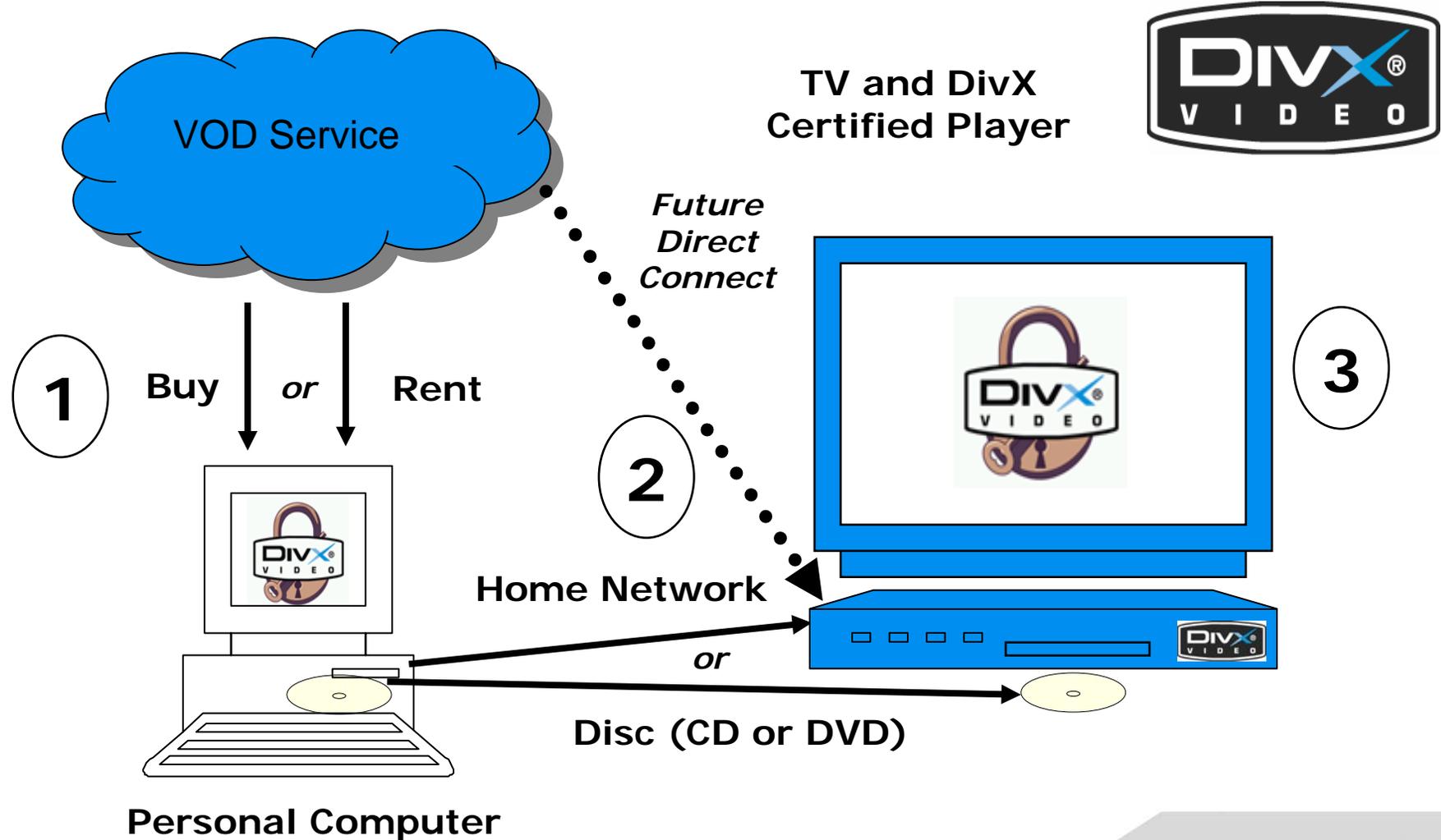
- Brings DivX video to the TV and CE products.
 - Certification ensures quality and interoperability.
 - Includes interoperability with DivX Video On Demand (VOD) to playback protected (encrypted) videos. Purchase and rental models supported.
 - Cost effective. Ex. Certified players cost same regular non-certified players.
- Profiles for all classes of CE devices.
 - Handheld, Portable, Home Theater, HD
- Certification has been extremely successful.
 - Major DVD chipset makers signed on.
 - 2003: over 2M Certified devices shipped
 - 2004: ~20M devices on track to ship
- Highlighted Partners
 - Chips: ESS, Mediatek, Sunplus, Zoran
 - Brands: JVC, Samsung, Phillips, Thompson
 - Many more (over 70), and more coming.



Only DivX Certified Devices
have the DivX logo



DivX® Video On Demand 1-2-3 with Certified Product



FCC's Challenge of the Broadcast Flag in Digital Television (DTV)*

- Create redistribution control scheme.
- Broadcast flag shall not interfere or preclude consumers from copying broadcast TV content and using or redistributing it within the home or similar personal environment as consistent with copyright law.
- Broadcast flag shall not foreclose use of the internet to send digital broadcast content where it can be adequately protected from indiscriminant redistribution

* Source – FCC 03-273 document/Report & Order and Further Notice of Proposed Rulemaking



Solution

- Use DivX Certified consumer electronics products.
- DRM is required and built-in to all DivX Certified products, and it solves the redistribution problem.
- DivX Certified decoder products can work without any modification.
 - Products available now in retail around the world.
 - DivX Certified players can play recorded content made by a DivX Certified encoder.
 - DivX Certified DVD players cost same as non-certified players (~\$70), and more products coming at same mass market prices.
- DivX Certified hardware encoder (in demodulator) products will need to recognize the flag and then convert into the user encrypted format for DivX Certified decoder.



FCC Requirements and DivX Technology

- DivX DRM and Certification should receive FCC approval as required criteria as outlined in FCC Document 03-273 are met.

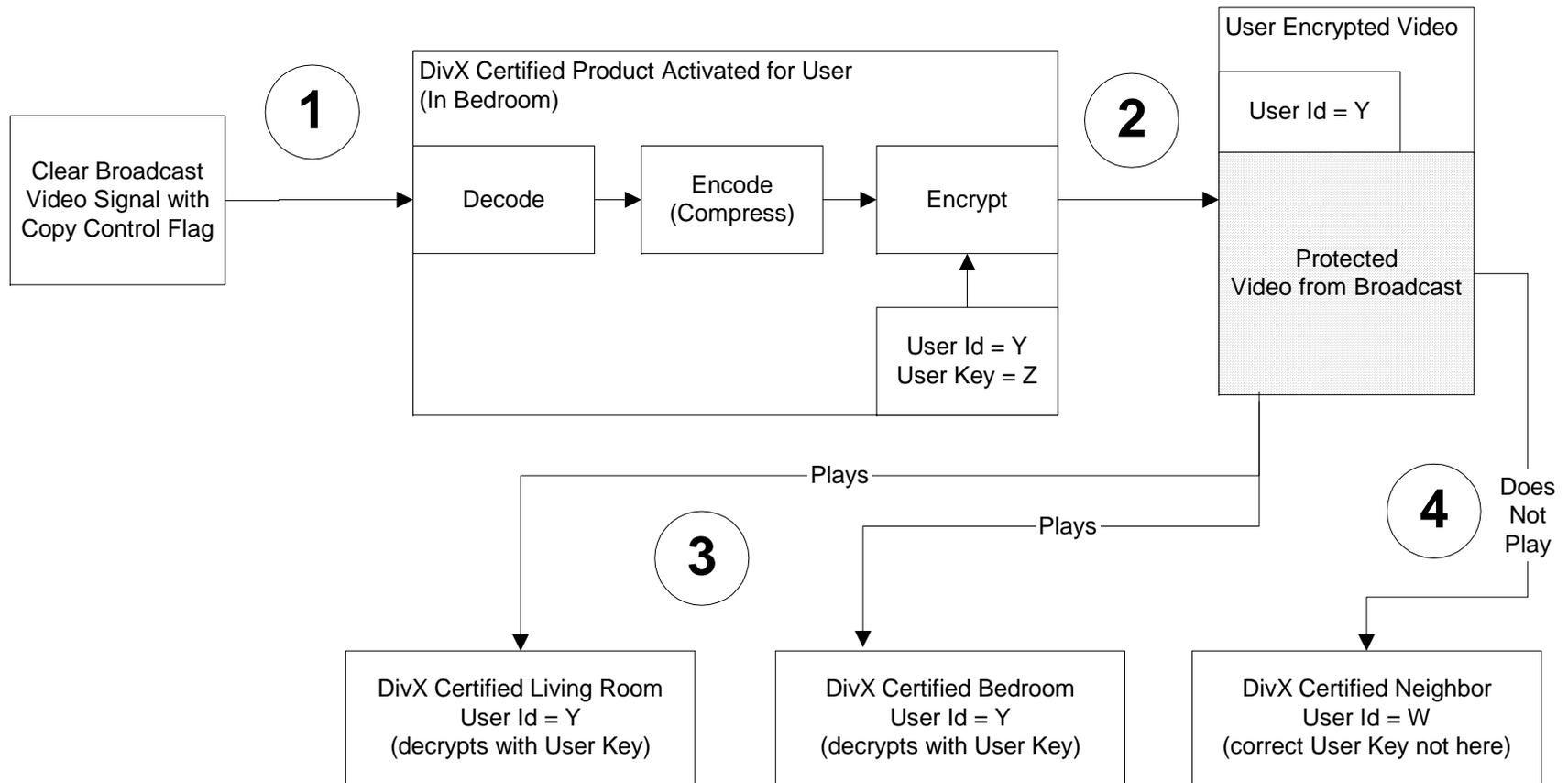
FCC Requirements	DXN Technology
Prevent indiscriminant redistribution of digital broadcast television over the internet or through similar means, and satisfy “Functional Criteria”	DivX DRM/DivX Certification Program
Fair & Reasonable Licensing Terms	Over 160 signed Licensee

DivX® DRM Technology & DivX® Certified Program Solution

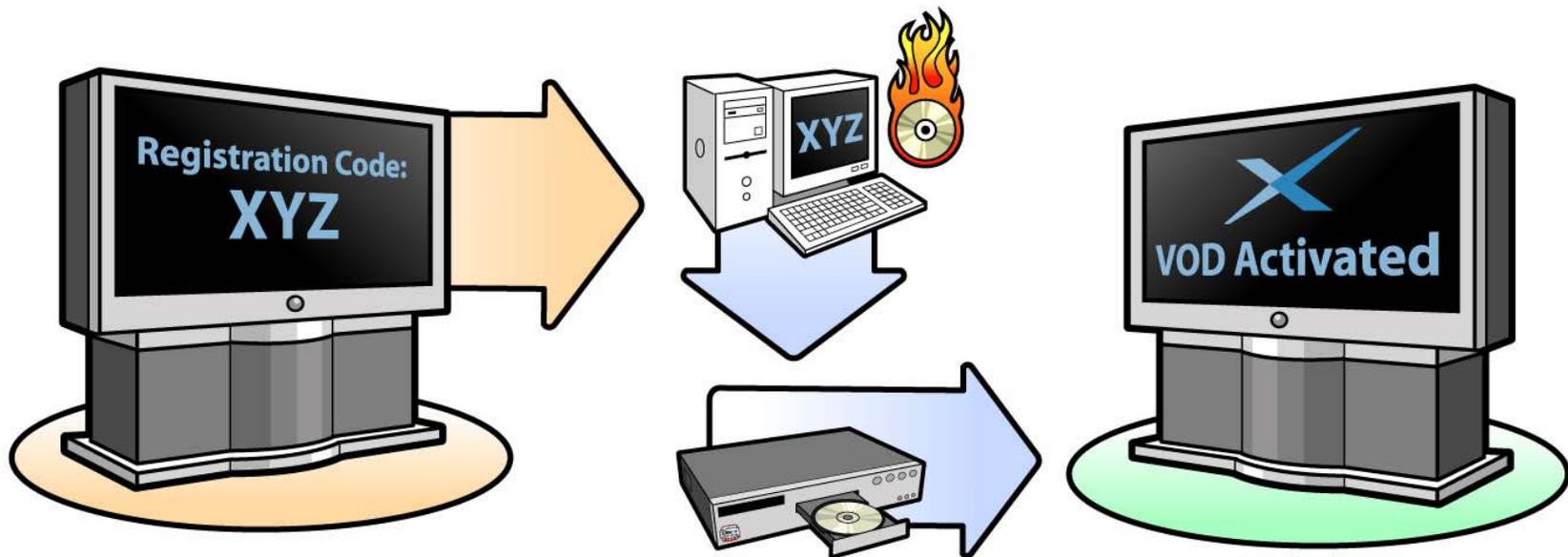
- DivX® DRM and the DivX® Certification program can support IP VOD today because of the following features of the DivX® DRM
 - Solid Encryption
 - Hardware Security
 - Secure Offline Playback
 - User Key Based
 - Central Registration Control for Models Versions
 - Multiple Certified Hardware Keys
 - Ease of Use
 - Uses Currently Available CE Products.
 - Simplicity, Cost, and Balance



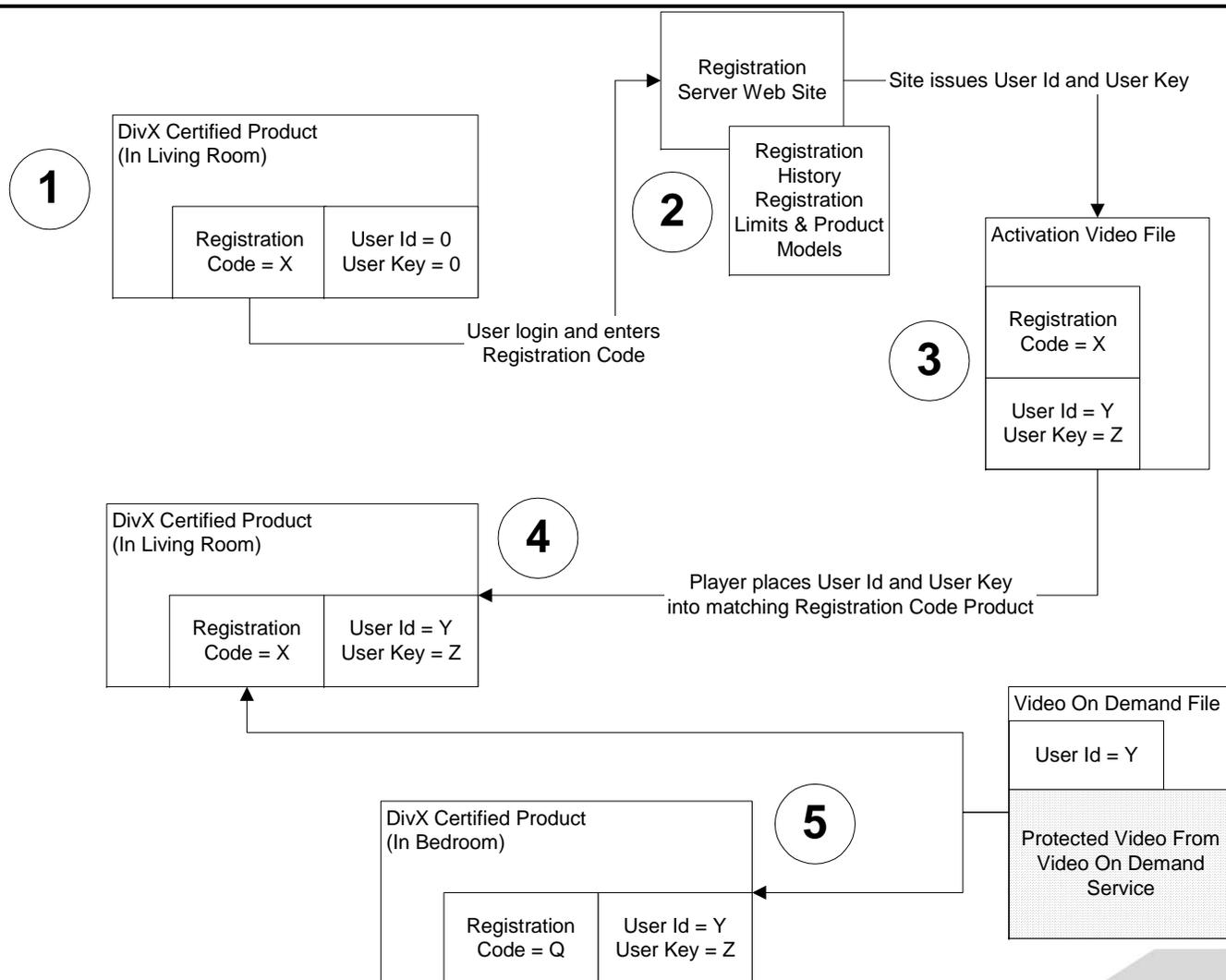
Flagged Content to Protected Video



DivX Certified Device Activation - Overview



DivX Certified Product Registration Details



Making Product with DRM Work - Stakeholders

- Consumers
 - Want a system that's easy to use.
 - Don't want security to hinder usage.
- Content Providers
 - Want a system that protects their investments and supports sustainable business models.
 - Want as much security as possible.
- Equipment Manufacturers
 - Want a system that costs as little as possible.
 - Do not want secure devices to be uncompetitive with non-secure devices.

Making DRM Work – Satisfying Consumers

- Consumers can watch DivX video on their TV's.
- Consumers can use a VOD service to get content.
 - Example: The Internet video rental service distributes the videos while providing all the usual benefits of selection, privacy, no rental return, etc.
 - No waiting for an entire file to download to start watching content.
- Consumers can record flagged DTV and use on their products.
- Content is tied to a consumer account, not to a specific PC or device.
 - Enables the consumer to play content on more than one device.
 - Enables them to upgrade or get another player and have their purchased or recorded content still work (no need to burn new discs or make new files).
- DRM is completely non-invasive.
 - Almost invisible to the consumer as long as they work within copyright law.



Making DRM Work – Satisfying Content Providers

- DRM separates ownership of a digital copy from the ability to play that copy.
 - Enables owners to both sell and rent content.
- Standard and trusted security algorithms and techniques help sustain security by:
 - Properly implementing cryptographic tools such as AES, SHA1, and SSL.
 - Partitioning and layering the VOD system to help make it more robust.
 - Controlling keys and other DRM aspects at central servers (just like banking models for automated teller machines).
- DRM works in many ways to protect content owner's property while enforcing copyright law.

Making DRM Work – Satisfying Equipment Manufacturers

- Decryption process has low computational overhead using accepted algorithms.
- Implementing DivX DRM adds minimal cost and complexity.
- Adding DRM increases market acceptance and revenue opportunity with ODM's, OEM's and consumers.

Subtle Security Reinforcement for Distribution Control

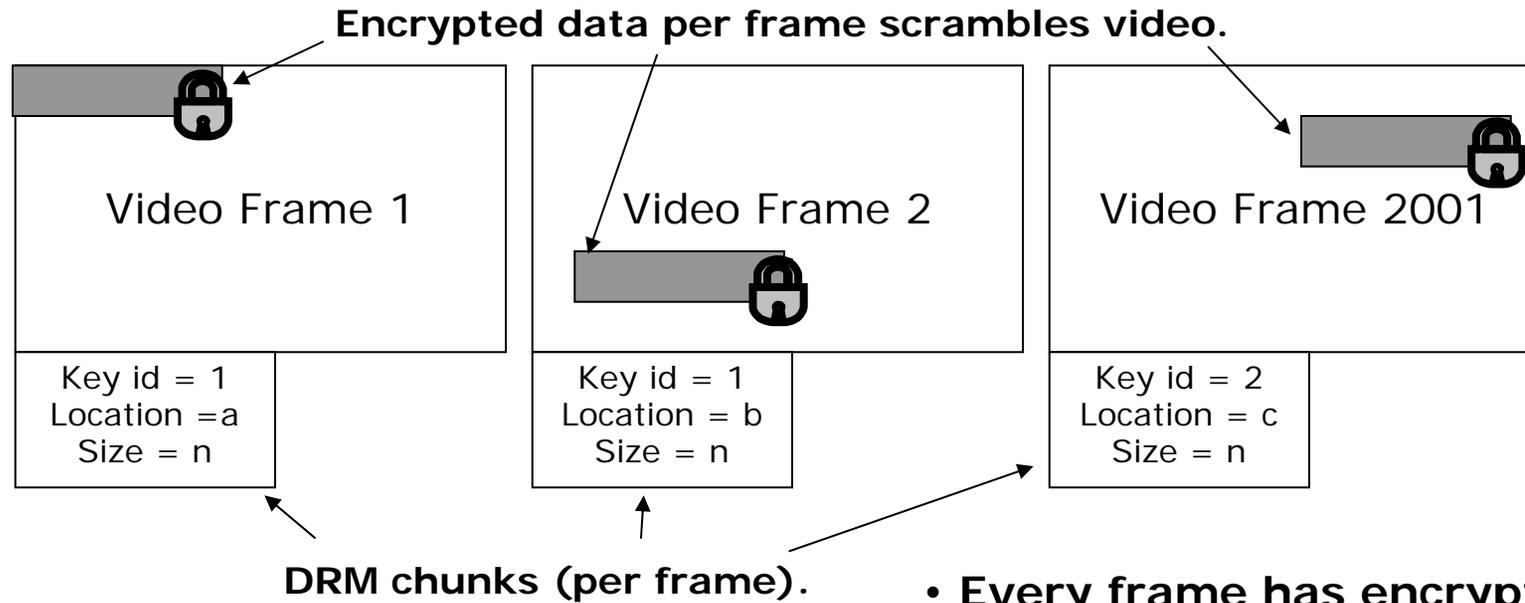
- The disconnected DRM system was designed to be easy and seamless for a single family.
- Trying to share products among several of families becomes a hassle.
 - Limited registration of products (6 in 6 months, 10 max) gives hard limit.
 - For VOD you only have 8 active rentals.
 - People sharing many products will “collide” with each other for rentals.
 - Which family gets priority if they want to add another product?
 - Accounts have to be shared, meaning someone’s account could get abused.
- PC security is much easier to circumvent, so user different keys and techniques to resolve rights on consumer electronics. Content can be made to only play on consumer electronic products.

DivXNetworks Disconnected Countermeasures

- All countermeasures have certain threats in mind and certain consequences.
 - Technical updates are generally easy (i.e. just change something such as key or plug a hole).
 - Business, legal, and consumer issues are generally difficult.
- Latent In Firmware
 - Make a dormant key an active key (server starts encrypting with new active key). Possibly to break any tools that get a hold of an active key.
 - Model id (firmware version) de-authorization. Model will longer will no longer activate from server.
- Firmware Update
 - Update hardware keys and/or model local hardware key (per model).
 - Update model version id because likely previous version was de-authorized.
 - Update for other fixes or changes to address circumvention tools if possible.



Video Frame Protection – Where protection starts.



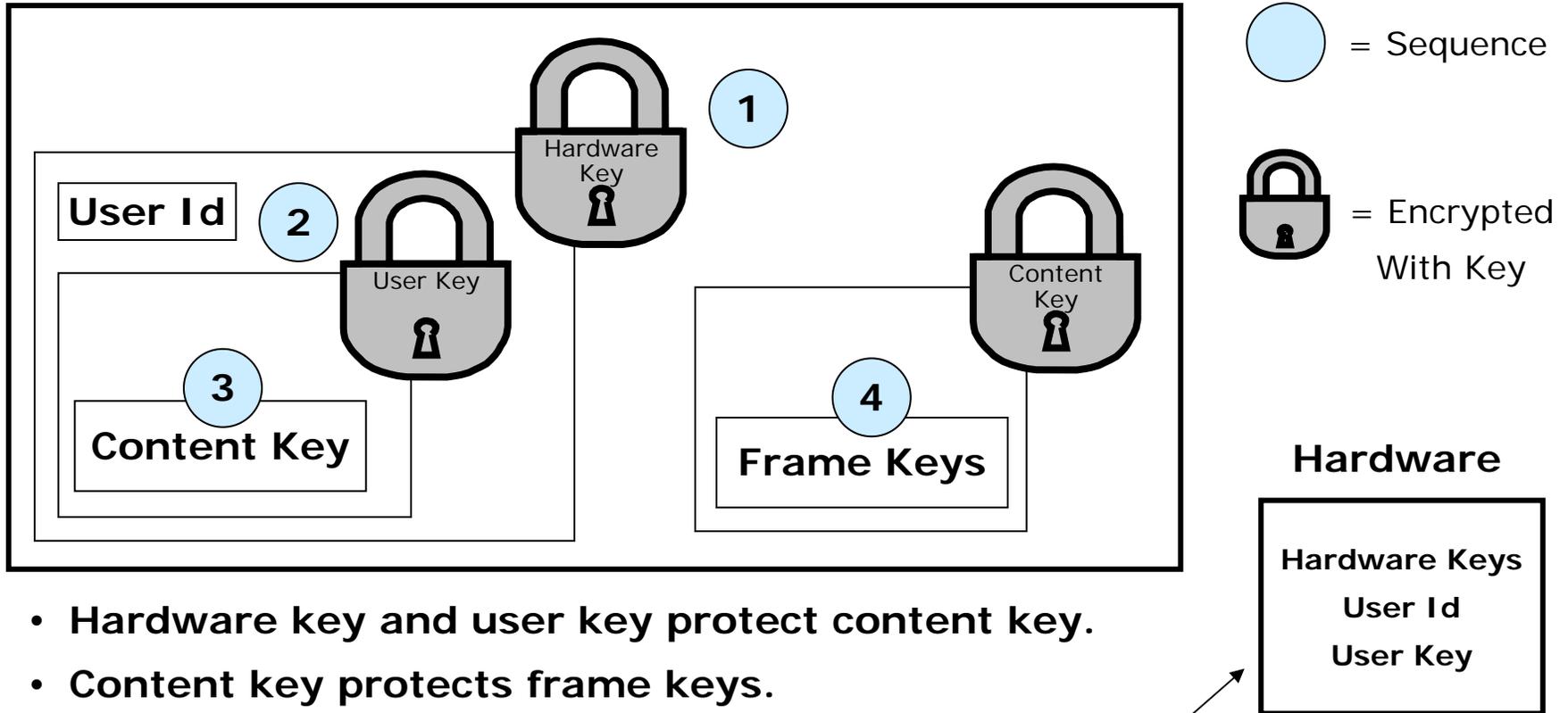
Frame Key Table (in file header)

Id	Frame Key
1	10010100...
2	01110010...
...	...
128	00100100...

- Every frame has encryption.
- Key changes every 2000 frames (~60-80 seconds).
- 128 keys per title.
- Frame based means easy seeks, trick play, and streaming friendly.

Frame Key Table Protection in Disconnected Mode

DRM File Header



- Hardware key and user key protect content key.
- Content key protects frame keys.
- Hardware key and user key are stored in hardware.
- User key comes from activation process, and stored is in non-volatile memory.

Demo and Q&A

- Demonstration
 - DivX Certified players showing redistribution control and user registration.
- Question and Answers





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