

DIGITAL CONTENT PROTECTION



High-bandwidth Digital Content Protection *revision 2.0*

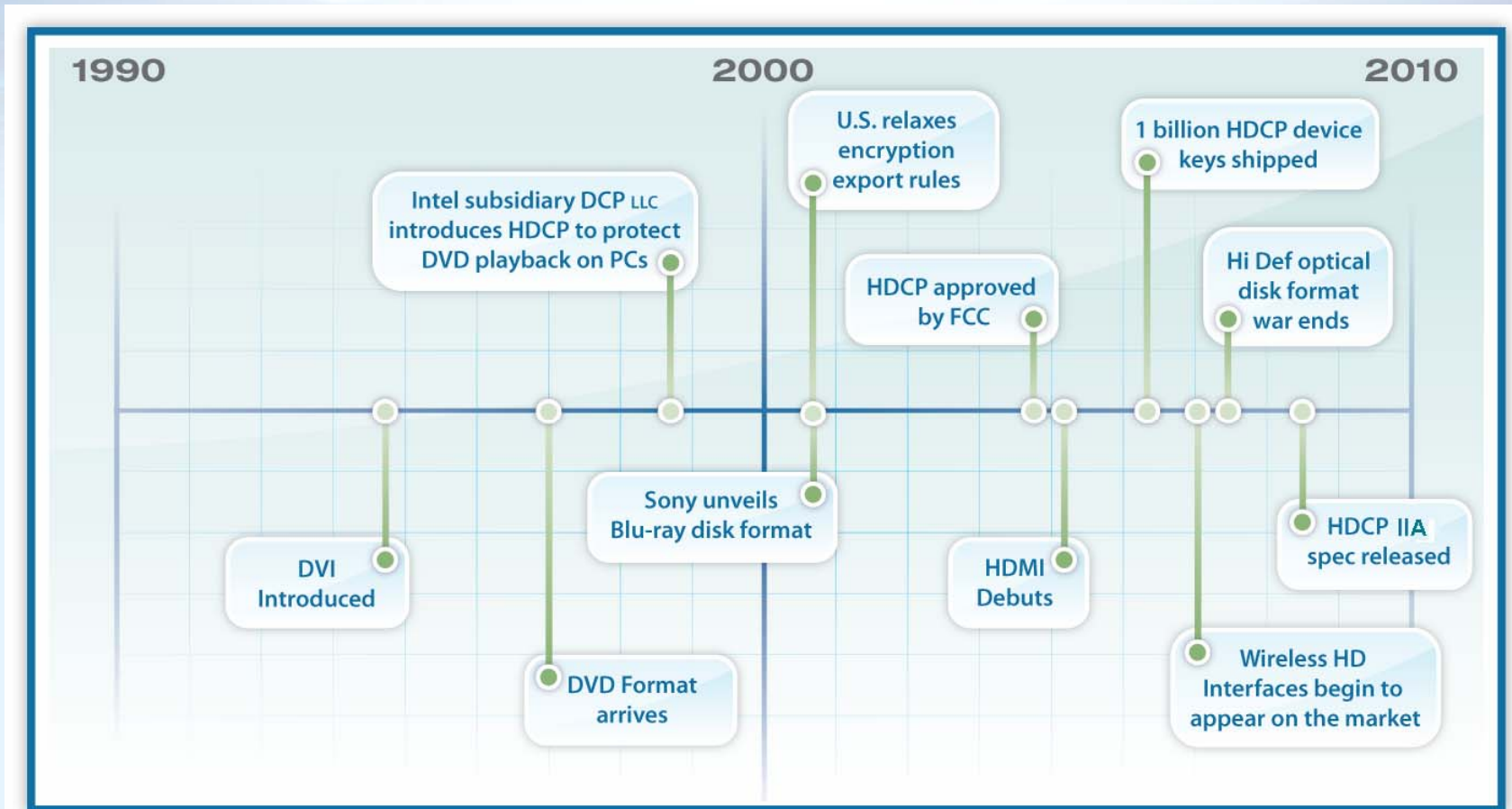
Content Protection for Next Generation Scenarios

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Agenda

- Industry Milestones
- Accelerating Demand for HDCP
- HDCP: The Source to Sink Solution for Protecting High Definition Content
- High-bandwidth Digital Content Protection *revision 2.0*
- Use Cases
- The Consumer Experience
- The Manufacturer Experience
- Summary

Industry Milestones: How we got here



Accelerating Demand for HDCP Keys

- **Worldwide HDTV sales skyrocketing**
 - 256 million homes will have at least one HDTV by 2010*
- **High Definition formats are here**
 - Stations and Service Providers offering High Def content
 - Broadcast
 - Satellite
 - Cable
 - 29.4 million households will own a Blu-ray player by the end of this year (132 million by 2012)*
 - Major studios releasing content on Blu-ray disc
- **New interfaces and scenarios for distributing HD content**
 - WHDI, WiHD, NGmS, TCP/IP, USB, Proprietary

1.3 Billion HDCP Keys Provisioned

*Strategy Analytics, Blu-Ray Devices: Forecasting Sales and Ownership



HDCP: The De Facto Content Protection Solution from Source to Display

- Industry-wide acceptance as an approved output
- Proven in the market
- Approved by the FCC, MII (China), DVB, MIDI
- Major interfaces and protocols supported: HDMI, DisplayPort, GVIF, DVI, DLI, UDI, IP, WHDI, TCP/IP, USB

"Secure interconnections such as HDCP are important elements of an overall content delivery system, addressing a key need in the development of new channels for high quality digital content delivery."

-- **Phil Lelyveld, Vice President, The Walt Disney Co.**

"HDMI with HDCP enables us to provide our customers access to the newest digital content and services available in the digital age, and we are committed to adopting HDMI across our lineup of DVD players and DTVs."

-- **Dr. Choon Lee, VP, Digital TV Laboratory, LG Electronics**

High-bandwidth Digital Content Protection *revision 2.0 (HDCP rev 2.0)*

- Supports wireless transmission of compressed and uncompressed HD content
- Simplified key provisioning for source devices
- Device pairing and locality check for robust protection
- New cryptosystem – 1024-bit RSA, Key Exchange, trust authority (DCP LLC) uses 3072-bit RSA keys
- 128-bit AES-CTR based encryption of the AV content
- The only seamless way to interoperate between HDCP 1.x and HDCP *rev 2.0* devices

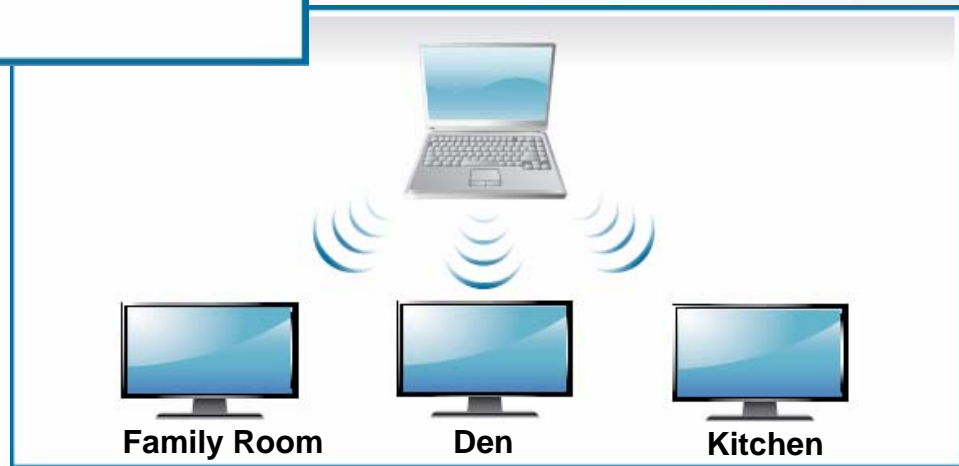
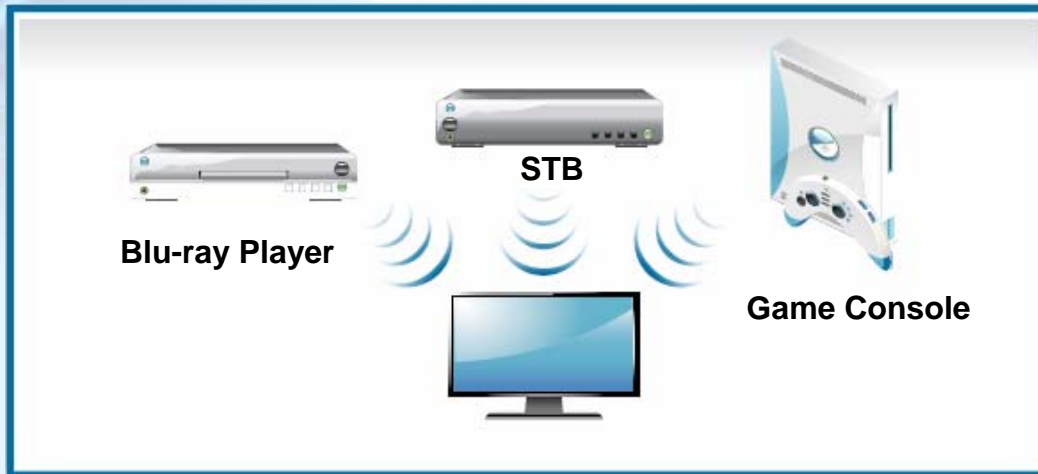


HDCP *rev 2.0* Specifications Now Available

- High-bandwidth Digital Content Protection Interface Independent Adaptation (HDCP IIA)
 - Supports transmission over any compatible protocol and underlying interface: TCP/IP, USB, Wi-Fi
- High-bandwidth Digital Content Protection on Wireless Home Digital Interface (HDCP on WHDI)
 - Supports WHDI interface



Use Cases



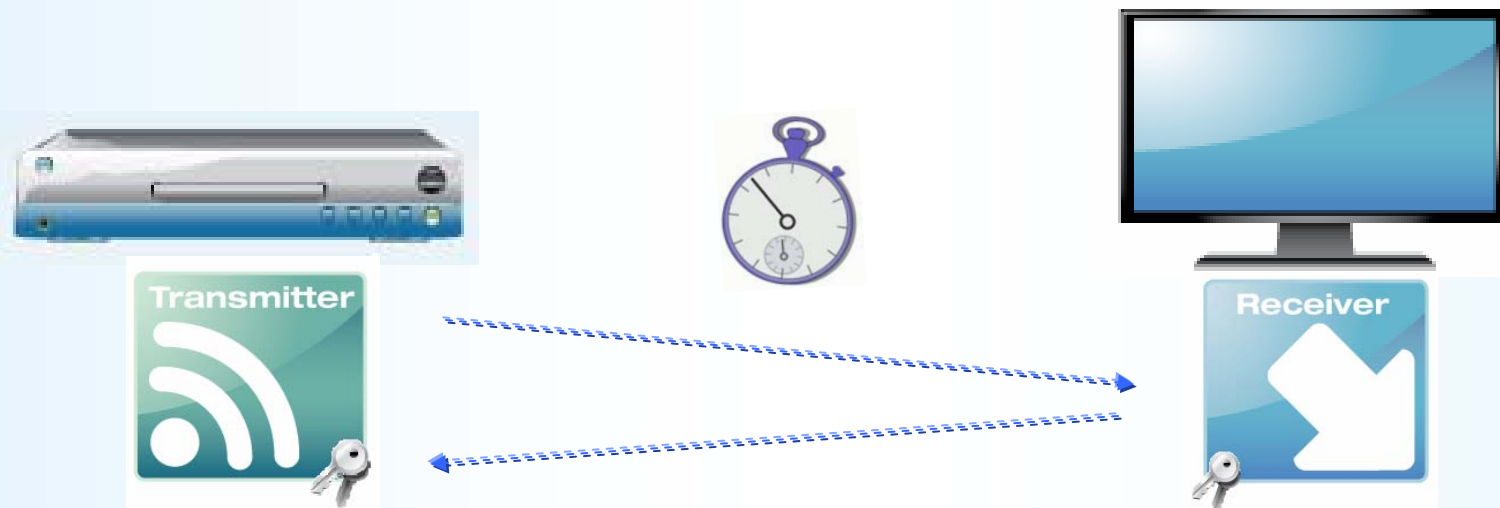
HDCP 1.x and HDCP rev 2.0 Co-existence

- Active components will handle seamless conversion

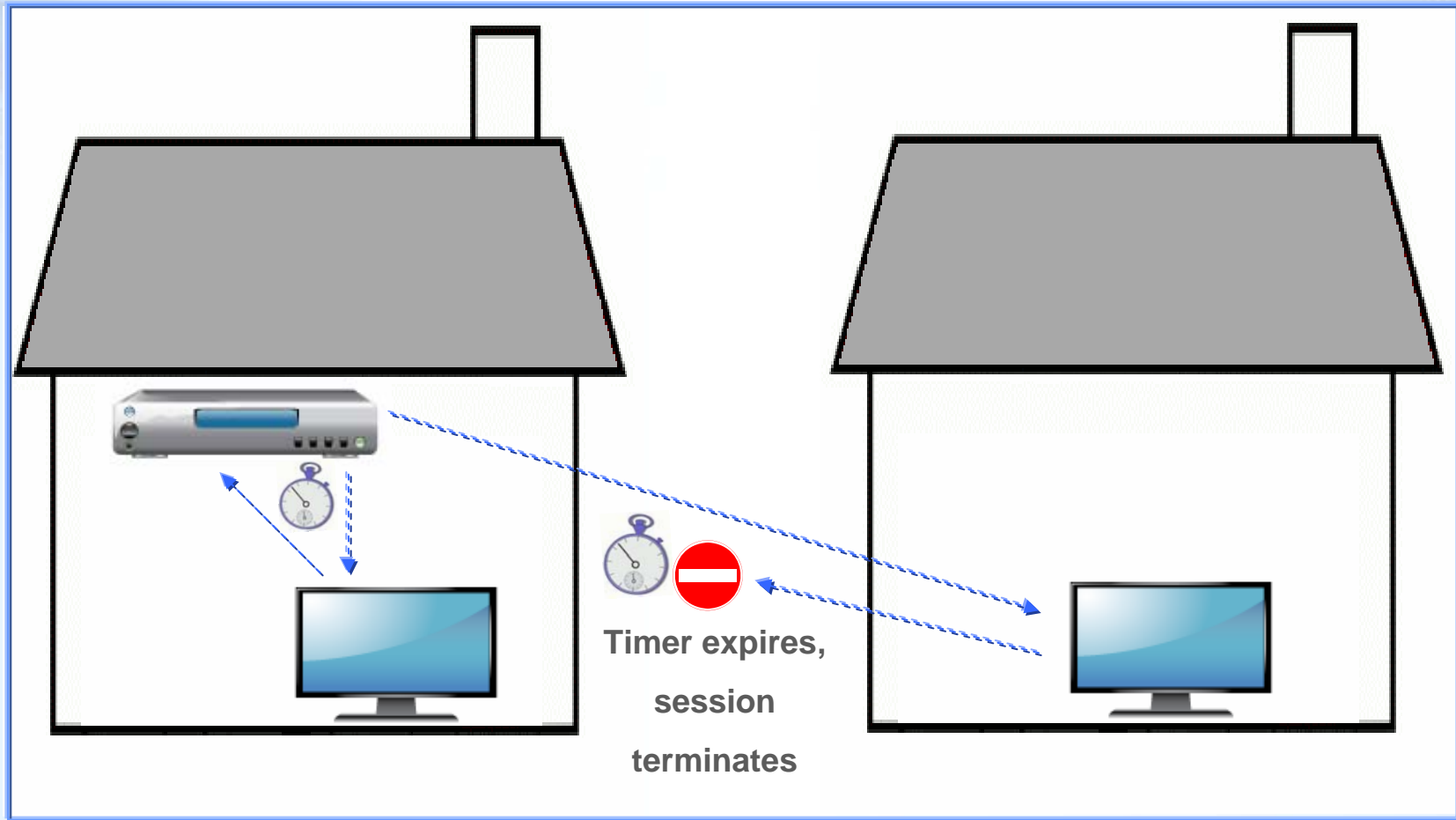


HDCP rev 2.0 Locality Check

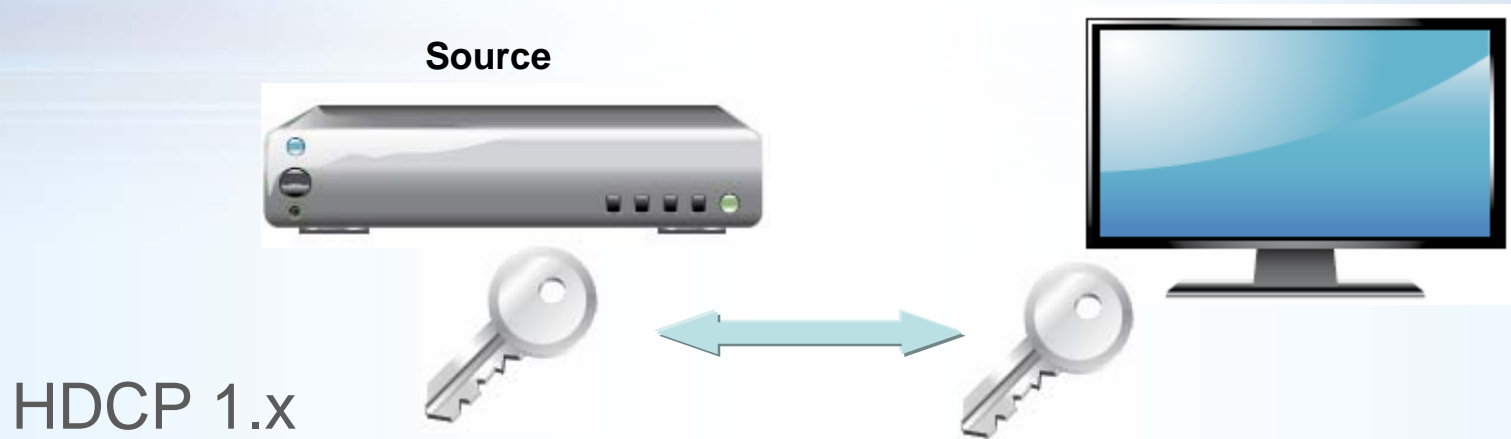
1. Most upstream transmitter sends signal to receiver
2. Timer at transmitter starts
3. If timer expires before signal is returned, session terminates



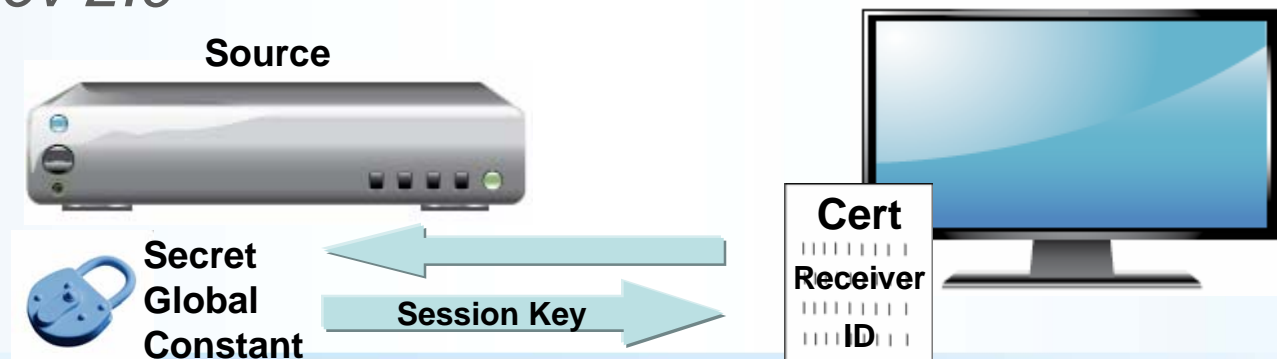
Locality Check



Simplified Key Provisioning for Source Devices



HDCP rev 2.0



HDCP 1.x	HDCP <i>rev 2.0</i> Specifications
For wired scenarios, uncompressed data	For wired or wireless scenarios, compressed or uncompressed data
No locality check needed	Locality check
Keys on source and sink devices	Global constant on source devices, unique receiver ID and keys on sink devices
Seamless interoperability with HDCP <i>rev 2.0</i> enabled devices	Seamless interoperability with HDCP 1.x enabled devices
Robust cryptography	Enhanced, state-of-the-art cryptography
HDMI, DVI, DisplayPort, GVIF, UDI	TCP/IP (applied to any underlying interface), USB, Wi-Fi, WHDI...

The Consumer Experience

- HDCP 1.x and HDCP *rev 2.0* scenarios remain transparent to consumers
- Simplified home set up – fewer wires
- Familiar interfaces and cables - or none at all
- Provides clear consumer path to next generation wireless HD products
- Less expensive (fewer components, cables)

The Device Manufacturer/Adopter Experience

- HDCP *rev 2.0* specifications licensed by DCP, LLC
- Current adopters covered by existing license agreement with addendum
- Current adopters do not pay again
- Key provisioning consistent with current provisioning; simplified source key provisioning
- Labs will be available for testing if desired

Summary

- HDCP is the de facto HD content protection solution from source to sink
- HDCP *rev 2.0* specifications: Content protection for next generation scenarios
- HDCP *rev 2.0* specifications available today: HDCP IIA, HDCP on WHDI
- Support for TCP/IP (and any underlying interface), wireless interfaces, compressed content
- 1024 bit RSA encryption, key exchange where the trust authority (DCP LLC) uses 3072-bit RSA keys
- 128-bit AES-CTR based encryption of the AV content
- Pairing and locality check for robust protection
- The only way to seamlessly interoperate HDCP 1.x devices and HDCP *rev 2.0* devices
- Still transparent to consumers
- Current adopters utilize existing license agreement

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Thank You!

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