



SD Cards Enable Secure Transfer of Premium Content

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Flash Memory Summit Agenda

- Who is SanDisk?
- What is the SCSA?
- What Do Customers Want?
- How SCSA Delivers?
- How Can We Get Involved?

Who Is The SCSA?

- Consortium founded by 20th Century Fox, Warner Bros, SanDisk and Western Digital



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- Creating a media-based, secure digital delivery and playback ecosystem for ultra-premium content
 - Compliments cloud-based services like Amazon Video and Ultraviolet by adding *secure* non-streaming option to store and view ultra-premium content

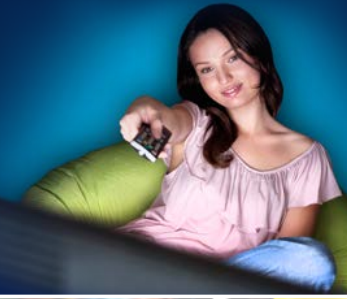
Who Is The SCSSA

SCSSA Founders



**CODENAME:
"PROJECT PHENIX"**

Consumer Viewing Habits




Consumption

Curiosity

Collection

Digital Opportunity



Purchase Blu-Ray

- Know they love the title
- Viewed many times before
- Plays a deeper emotional role

WATCH ON:
Laptops/TVs

Underground Copies

TVs/Laptops/Tablets/Phones

Subscriptions

WATCH ON:
TVs/Laptops/Tablets

Digital Rentals

WATCH ON: **TVs** | **TVs**

Stored on **hard drives** and **sticks**.
Kept "just in case" to justify the effort

Little need to download/backup and some even get **deleted** to clear the clutter

Stored in packages and kept forever

Watch to Kill Time

Watch to Review

Watch to Appreciate

What Digital Collectors Want

- Quality
 - Highest quality image and audio format possible
 - Big-screen viewing experience without interruptions
- Convenience
 - Ability to store all movies in one place
 - Take their movies “on the road”
 - Play on any device
 - Synchronized with their cloud-based movie accounts

The Cloud by itself is not enough!

Internet Speeds: Still Too Slow

- **10Mb/sec**
 - Average sustained download speed in the U.S.
- **25%**
 - U.S. households have download speeds \leq 4 Mb/s
- **1080P(+) streaming content cannot be viewed with a sustained, seamless experience**

Content	Resolution	Codec	Avg. Bit Rate
DVD	480P	MPEG2	5 Mb/s
Blu-ray	1080P	MPEG4	25 Mb/s
UHD/4K	2160P	MPEG5/HEVC	50 Mb/s

Local, high-capacity, secure storage is key



Project Phenix Uses a Media Bound Model

- Similar to the disc experience today
- Content is stored locally on physical storage media
 - Enables digital library collections
 - Fast and reliable playback—even for very large files
- Simple content transfer capability across devices with SCSI-compliant storage components
- Offline playback at best resolution for device

How Project Phenix Works

- Purchase content online, download once to intelligent storage with integrated hardware security
 - File contains multiple copies of movie in different resolutions
 - Background download possible
- Store on central “home movie server” or other secure storage
- Play unlimited times from local storage
- Copy appropriate resolution version to portable devices
- No Internet connection required for playback





Project Phenix Enables Distribution of Premium Content

- Ultra HD/4K
- High bitrate 1080p – BD Quality
- High Dynamic Range (brightness)
- Expanded color space
- HD audio
- Future formats
- New business models such as pre-order with trickle down



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Project Phenix Benefits Consumers

- Highest Quality, Digital Movie Content Available
 - Blu-ray quality 1080p (16-25Mbps)
 - 4K content
 - EDR content (enhanced dynamic range)
- Faster Access
 - Robust security enables studios to create new business models
- Portable Movie Library
 - Entire video collection on a single drive (home movie server, SD card, portable USB storage)
- Best Consumer Experience
 - Device portability
 - No network connection required for playback



Thank You.

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