

Delivering Content to Cinemas

The logo for the E-SCREEN project, featuring the text "E-SCREEN" in a large, blue, sans-serif font with a yellow glow effect, and the word "project" in a smaller, yellow, sans-serif font below it. The logo is centered within a dark blue rectangular background.

E-SCREEN
project

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Kuurne, April 8th 2005

- **Digital Cinema: the arising opportunities**
- **Technologies, markets and applications: The Audiovisual Pyramid**
- **Does transmission affect distribution?**
- ***"Store&Forward"* vs. *"Live"*: philosophy and operations**
 - ✓ **Physical Delivery**
 - ✓ **Cable Delivery**
 - ✓ **Satellite Delivery**
- **A Mix-and-match: the scalable delivery model**
- **Experience in transmitting to Cinemas: Elsacom's Case History**
- **Conclusions**

Optimizing the economics of the distribution process

- ✓ No more print duplication
- ✓ Lower barriers to content circulation
- ✓ Security

Enhancing opportunities for theatrical exploitation

- ✓ Cinema Theatre ⇒ M.E.V. (Multimedia Integrated Venue) ⇒ additional revenue streams
- ✓ Revitalize remote theatres
- ✓ Video-on-demand access to content libraries

Wider entertainment offer for the general public

- ✓ Sports, music
- ✓ Interactivity

🎬 Different content, different quality

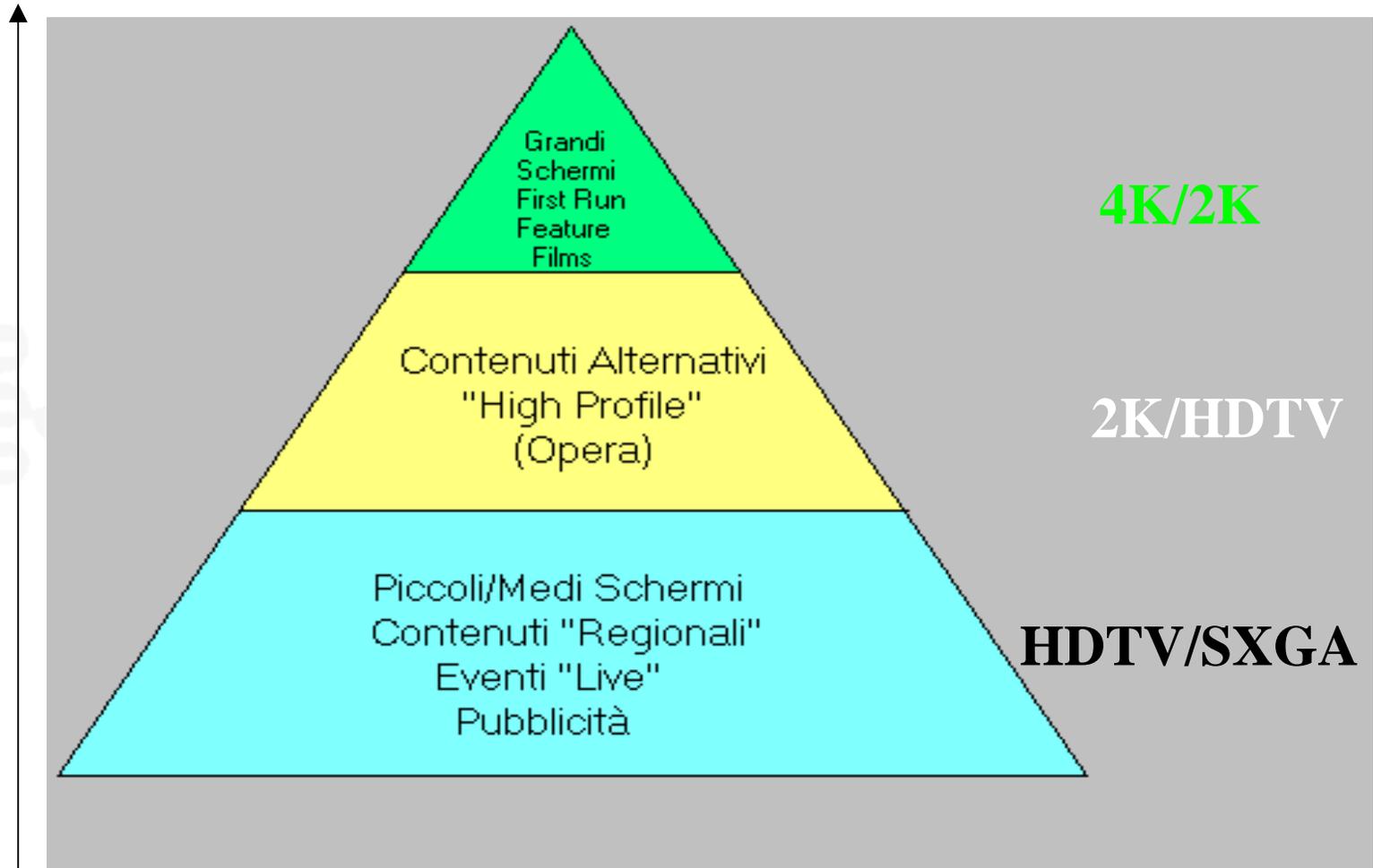
- ✓ "hierarchic"
approach

🎬 Different content, different delivery

- ✓ Advertising
- ✓ Entertainment
events
- ✓ Alternative use
(business,
educational)
- ✓ Feature Films,
Operas



Quality



Application

Distribution: getting Cinema in touch with content

■ Transmission does not affect distribution...

- ✓ ...in content selection, rights negotiation and sale...
- ✓ ...in film marketing

■ Transmission does affect distribution...

- ✓ ...in the economics of the delivery process...
- ✓ ...in allowing new exploitation windows for A/V contents



**A Carrier/Service Provider of digital Contents IS NOT a
Distributor**

Store and Forward: content processing

Off-line digitalization of the A/V sources

- ✓ 35 mm \Rightarrow film-to-tape transfer (telecine) \Rightarrow mastering
- ✓ Native digital source \Rightarrow mastering

Production of the DCP (*Digital Cinema Package*)

A single DCP supports:

- ✓ 1 video track + n audio tracks, corresponding to different languages
- ✓ Audio/video synchronisation
- ✓ Versioning (selection of scenes)

Protection of the DCP files through an Encryption algorithm

Store and Forward: content delivery

- Content delivered via physical media or file transfer (terrestrial, satellite)
- Delivery to authorised recipients only
- Retransmission of corrupted packets (for file transfer only)
- Projection occurs in a later stage
 - ✓ Content is stored on a server
- Store & Forward can support any type of Video format

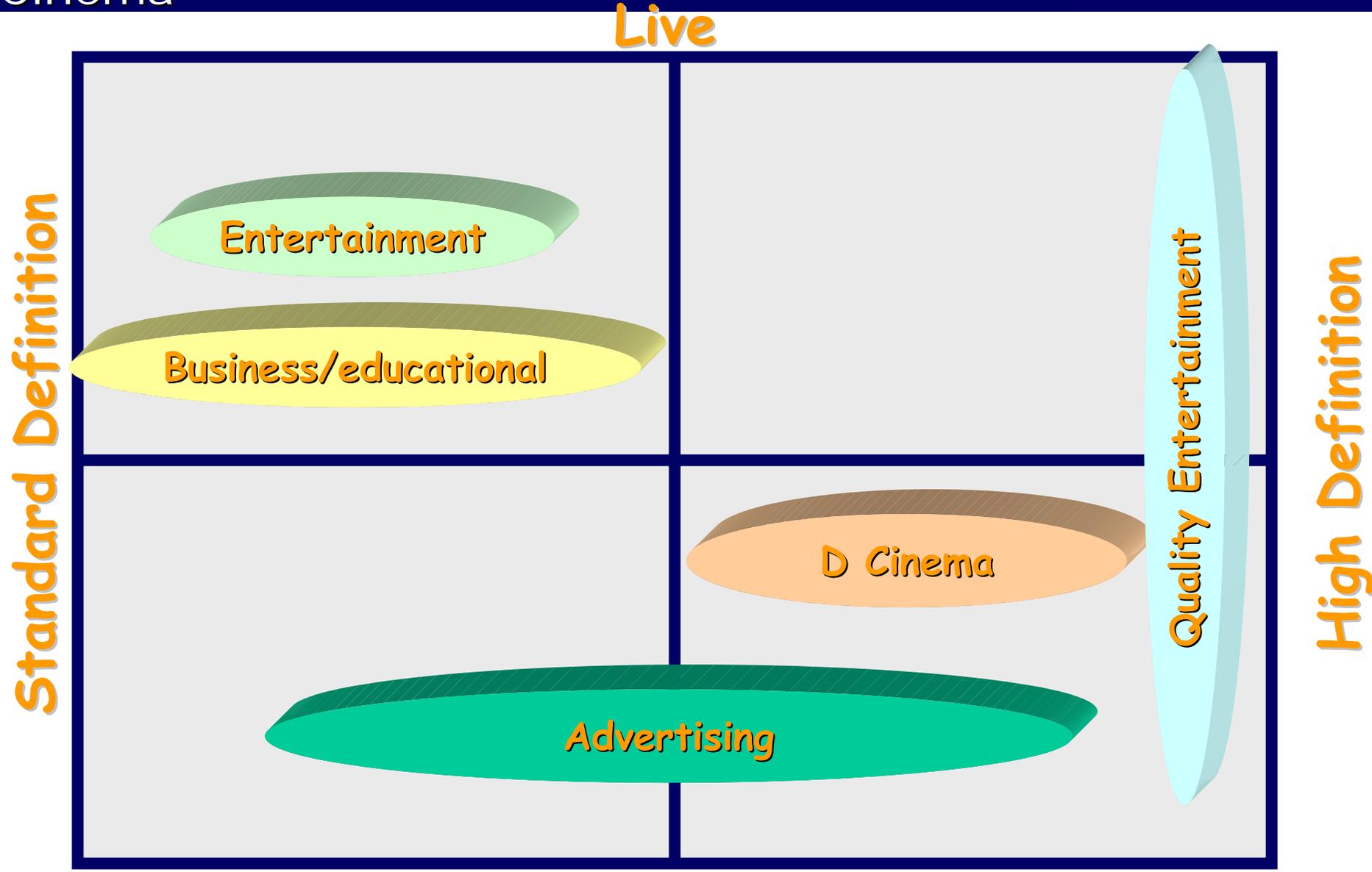
D-CINEMA IS ALWAYS STORE AND FORWARD

D-CINEMA IS NOT VIDEO STREAMING

Live Transmission

- **A/V contents are delivered and projected simultaneously (no storage)**
- **Various possible sources:**
 - ✓ Live show
 - ✓ Audiovisual catalogue (content retrieval)
- **Different encoding/decoding chain is utilized**
- **Delivery can be:**
 - ✓ Point-to-point (terrestrial high-bandwidth)
 - ✓ Point-to-multipoint (terrestrial low-bandwidth, satellite)

Store&Forward vs. Live: a usage pattern for Cinema



Store & Forward

- Physical delivery is always Store&Forward
- Suitable for both E-Cinema and D-Cinema contents
- Different physical media, based upon the format:

- ✓ DVD, Digibeta

- ⇒ advertising, documentaries, short movies

- ✓ Hard drives, LTO tapes

- ⇒ feature films, other HD contents

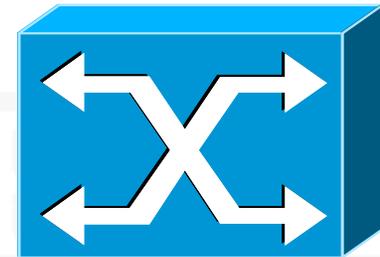


- Cost linearly increases with the number of served screens

**Physical delivery is most likely to be adopted in the early stages
of D-Cinema**

🎬 DSL (Digital Subscriber Loop): transmission of digital data over ordinary copper telephone wires

- ✓ “Last-mile” connection of PSTN facilities, from 10 to 20 faster than standard dial-up
- ✓ Transmission capacity up to 640 kbps
- ✓ Point-to-point unicast sessions
- ✓ Delivery cost linearly increases with the number of served screens
- ✓ Widespread, affordable
- ✓ Unsuitable for High Definition contents



🎬 DSL connections are usable for the delivery of screen advertising and as return channel of satellite/fiber optic links

- 🎬 **The solution: a site-to-site VPN connection on high-speed fiber optic lines**
- 🎬 **Suitable for any type of content/event, but...**
 - ✓ ...there is need for dedicated links
 - ✓ Limited coverage
- 🎬 **Capacity up to 2.5 Gbps in current commercial applications**
- 🎬 **Delivery of uncompressed contents is possible**
 - ✓ Excellent quality
- 🎬 **Point-to-point, no multicasting**
- 🎬 **Cost linearly increases with the number of served screens**

■ **Potentially unlimited coverage**

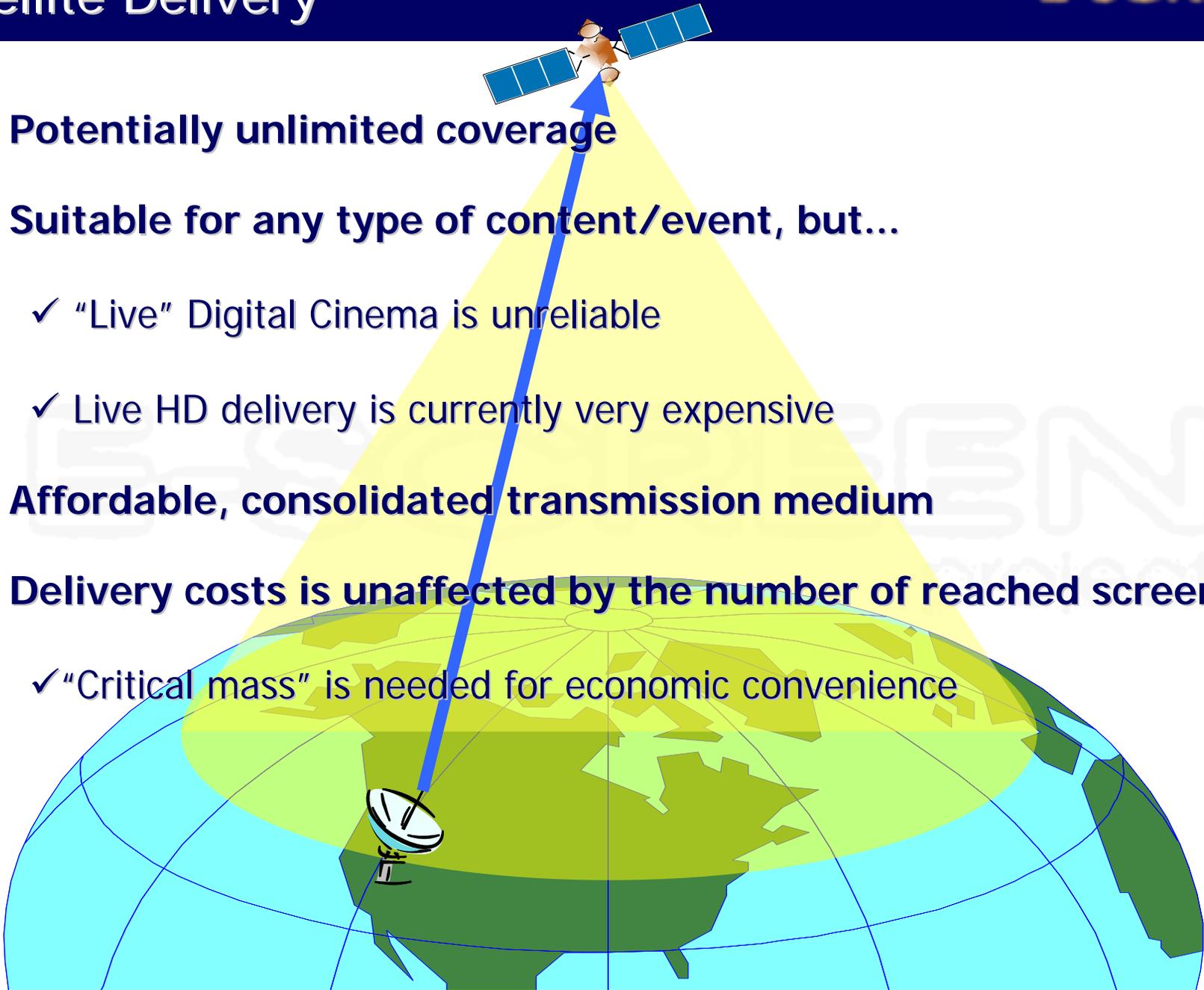
■ **Suitable for any type of content/event, but...**

- ✓ "Live" Digital Cinema is unreliable
- ✓ Live HD delivery is currently very expensive

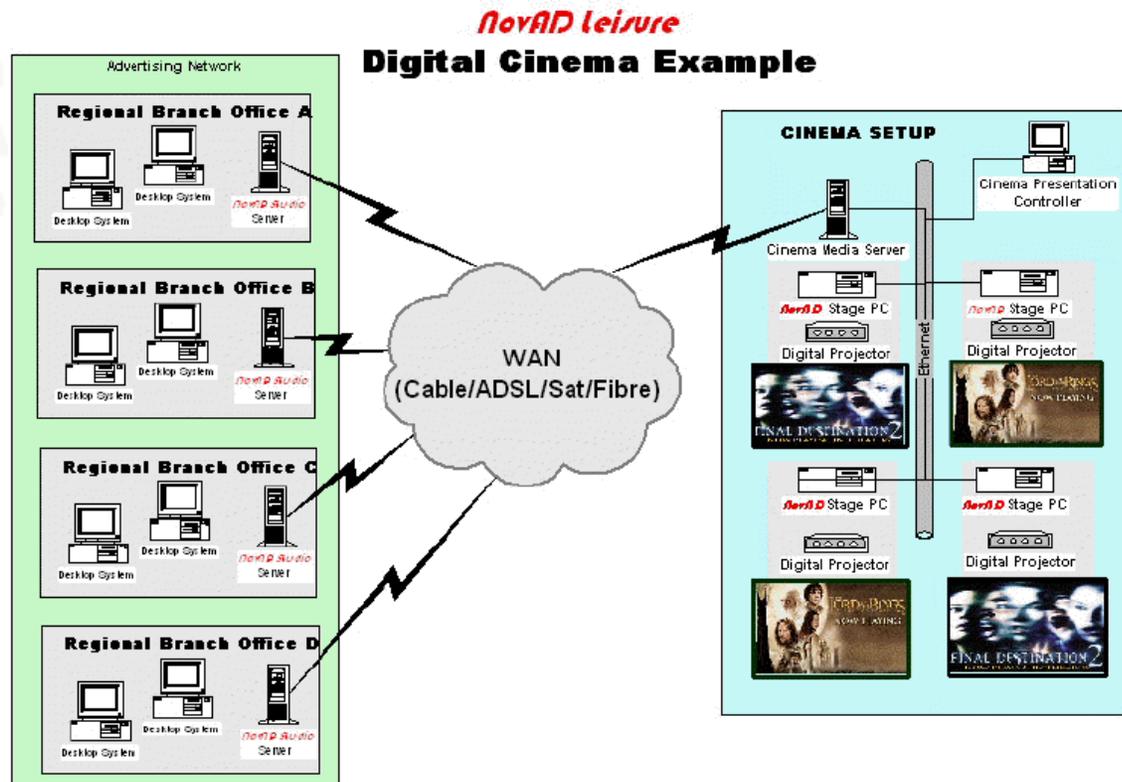
■ **Affordable, consolidated transmission medium**

■ **Delivery costs is unaffected by the number of reached screens**

- ✓ "Critical mass" is needed for economic convenience



- Fiber Connection between Studios/post-houses and centralized transmission hubs
- Remote delivery via physical and/or satellite (HD contents) or narrowband terrestrial links (SD contents)



Delivering Content to Cinemas: the Elsacom experience (1- Physical delivery)

🎬 March 2005: "Deep Blue": the 1st Digital Release of an Italian Independent Distributor

🎬 Italian DCP produced from a D5 tape source

🎬 Content physically loaded by Elsacom on 9 Servers located at Italian digital screens

🎬 The outcomes:

- ✓ Simple Operation
- ✓ Exhibitors feel safe (a 35mm-like operational practice)
- ✓ Servers are generally easy to use



Delivering Content to Cinemas: the ElsaCom experience (2- Satellite S&F delivery)

- 🎬 January 2005: Hollywood Classics Ltd. committed to ElsaCom the encoding, encryption, subtitling and delivery of 4 Classic Movies to 9 screens across 5 Countries
- 🎬 A Multilanguage DCP was produced with different subtitles
- 🎬 Movie "Robin Hood" was delivered via Satellite on March 25th to UCI screens in 5 Countries.
- 🎬 Satellite transmission at 8 Mbit/sec. for later projection

🎬 The outcomes:

- ✓ Seamless and safe delivery
- ✓ Good Integration between storage and receiving devices
- ✓ Content easily uploaded on the Cinema Servers
- ✓ Exhibitors initially doubtful, then confident

Hollywood Classics



ELSA COM

Delivering Content to Cinemas: the ElsaCom experience (3- Live Events via Satellite)

- 🎬 **March 12th, 2004: The first live event for the Italian Cinema**
- 🎬 **Rock Concert of the Italian Group "Le Vibrazioni" transmitted live to Warner Village Cinemas in Rome and Milan**
- 🎬 **Satellite transmission at 12 Mbit/sec (prox. 3 times the bit rate of satellite TV)**



🎬 **The outcomes:**

- ✓ Very good audiovisual quality
- ✓ *Easy-to-use* in the theatrical environment
- ✓ "Intimate" relationship between Artists and Audience

Content transmission:

- ✓ A new way of delivering content, not a revolution in the cinema business
- ✓ A new opportunity for creating and exploiting audiovisual libraries
- ✓ A new promotional tool ⇒ special “live” events

Digital Cinema is not Cinema on the Internet

- ✓ Quality of display (Cinema “experience” vs. home theatre “experience”)
- ✓ Content security