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# The Potential of Digital Watermarking



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**[www.verimatrix.com](http://www.verimatrix.com)**





# Verimatrix - The Company



- ❑ Formed 1999
- ❑ 70+ employees, headquartered in San Diego
  - Offices in Beijing, Tokyo, Hong Kong, Singapore, Seoul, London, Paris, Amsterdam, Vienna, Boston, Atlanta
- ❑ Focused on digital TV security
  - 70+ systems installed worldwide
  - 1+ million STBs licensed – April 2006
  - Named global number one in IPTV content protection – March 2007
- ❑ Using VideoMark forensic watermarking product to extend pay-TV security parameter



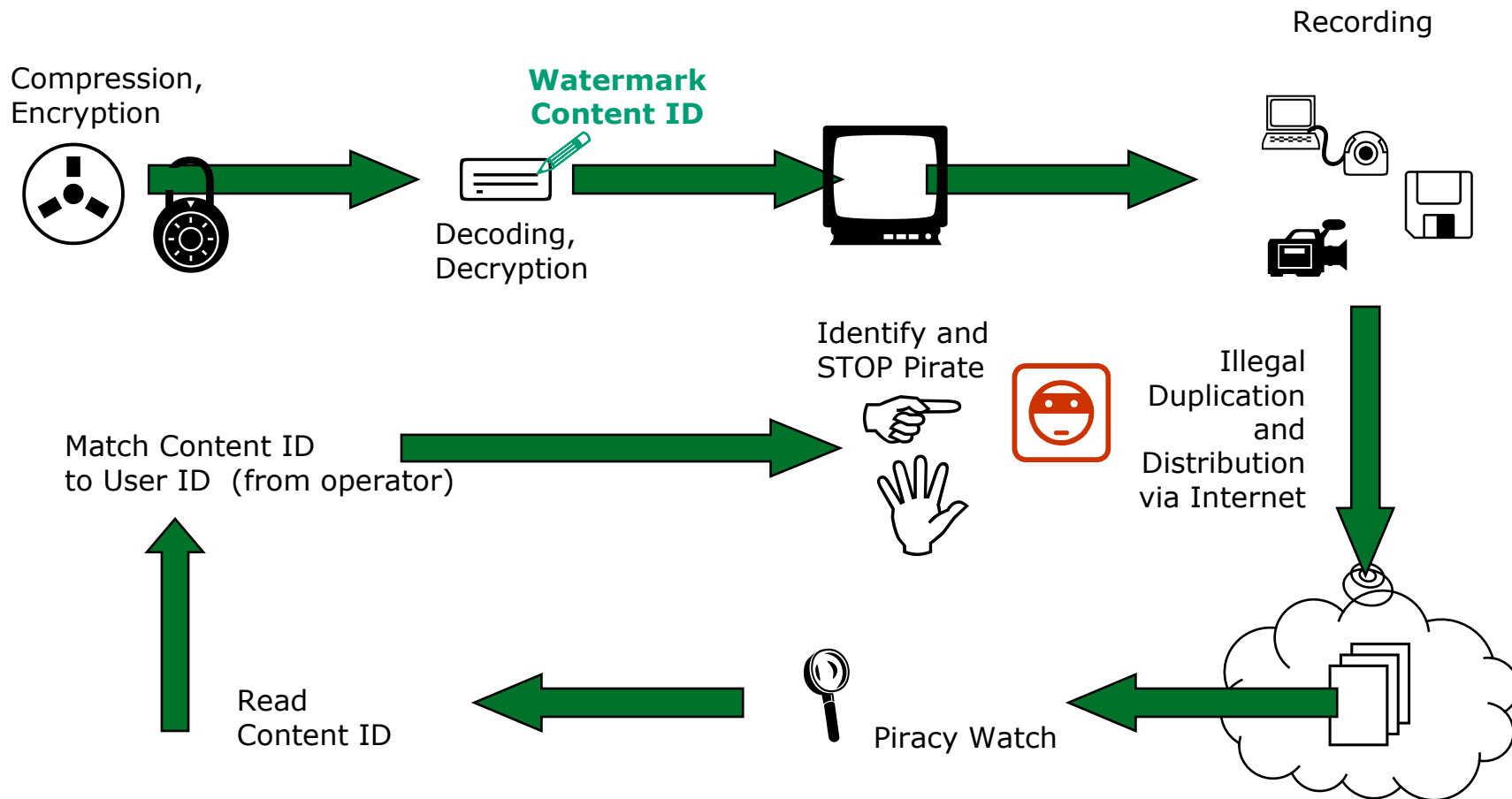
# Digital Watermarking Intro

- ❑ A Digital Watermark is ... a content serial number
- ❑ It must be imperceptible, secure and robust
- ❑ It should survive the analog hole, compression and geometric distortions
- ❑ Its purpose is to enable identification of illegitimate distribution of content



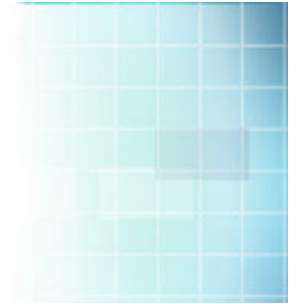


# Application Example in STB





# Practical Implementation



- VideoMark insertion on the fly (during playback)
  - Use distributed processing power
  - Enable unique identification of every copy
  
- Software only technique
  - Low overhead
  - Compatible with today's STB CPU
  - Mark identifies operator, client and content
  
- Practical implementation today on
  - Key STB SOCs
  - ViewRight PC secure IPTV client



# Digital Watermarking Techniques

- Perceptual Model is used for invisibility
- Trade offs between robustness, invisibility, information size, speed of application
- Different approaches to Digital Watermarking
  - Machine readable
    - Frequency transformations
    - Flicker
    - Spatial modification
  - Human readable information



# Watermarking Potential



- ❑ Increase security of distribution channel
- ❑ Change consumer perception  
As previously demonstrated in the screener case
- ❑ Enable competitive advantage for distribution platform through early release windows for secure platforms
- ❑ Enable new business models through more flexibility in content use

**Thank You!**



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