Technology Development, Standards and Patent Pools

Lessons from the IT World

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Common Technology Development and Patent Landscape Paradigm

Commercial Evolution of Technology

- Many emerging and next generation technologies characterized by initial stage of proprietary, closed technology development, resulting in a fragmented patent landscape with blocking patents held by different stakeholders

Development of Standards

- Eventual cooperation to define interoperability standards to promote adoption of technology and expand the market
- Standards results in some winners & losers, but a well-developed patent portfolio can provide a hedge

Creation of Patent Pools

- To Erect Efficient Licensing Regime and Remove Blocking Patents in Fragmented Patent Landscape

Standards Setting Organizations

- Huge Variety of Standards Setting Organizations in IT
  - ECMA
  - IETF
  - W3C
  - OpenID
  - DVD Forum
  - IEEE

- Common Features
  - Working Groups
  - IP Rights Policies
    - Disclosure Obligations for Known IP
    - Licensing Commitments for Essential Patent Claims owned by Members

Patent Pools

A patent pool is an agreement between at least two patent owners to license one or more of their patents to one another or to third parties.

Historical uses:

- to make inventions available to the public,
- to promote a technical standard, or
- to create more efficient licensing markets.

History

Patent pools are not a new innovation.

Sewing Machine Patent Pool: In 1856, sewing machine manufacturers Grover, Baker, Singer, Wheeler, and Wilson all met in Albany, New York to resolve a patent dispute. Instead of protracted litigation, they agreed to pool their patents and formed the Sewing Machine Combination to mass produce sewing machines.

World War I: To allow manufacturers to produce airplanes for use in World War I, aircraft manufacturers formed an aircraft patent pool in 1917.

Modern Examples – Mainly Centered on Standards

MPEG-2 and other video standards

- MPEG LA

DVD Formats (DVD-ROM, DVD-VIDEO, DVD+/-R/W)

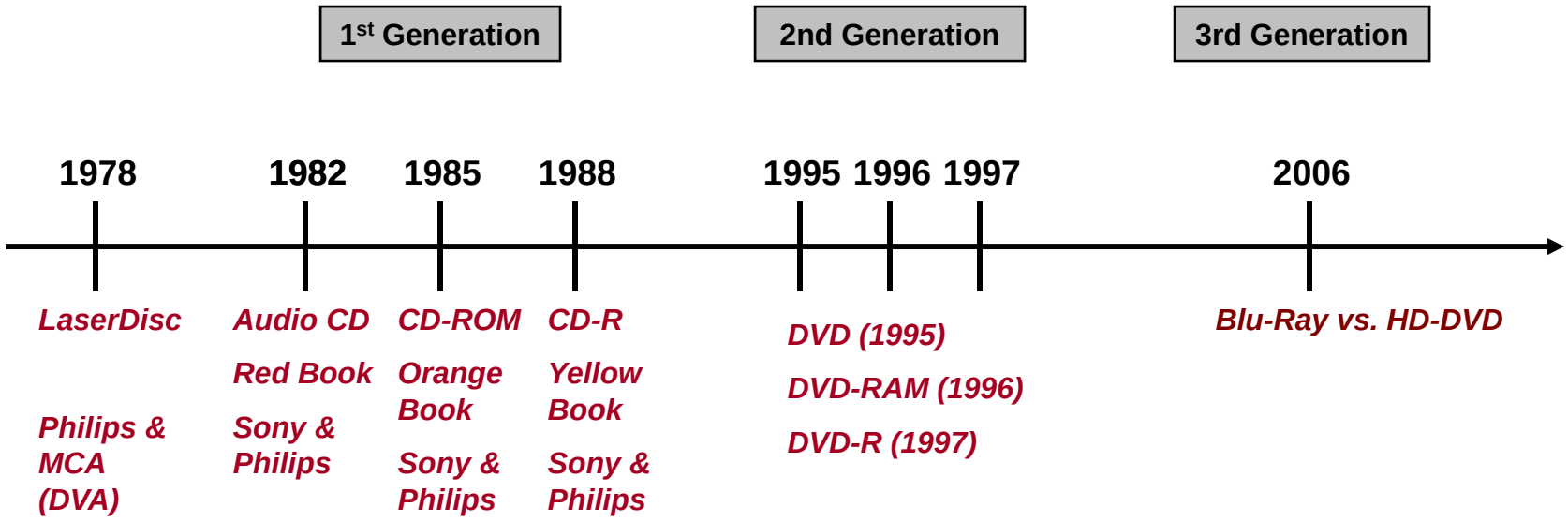
- DVD6C & DVD3C Licensing Groups

IEEE 1394 (Firewire)

Linear Tape Organization (LTO)

- HP, IBM, Quantum

Optical Disc Technology Timeline



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Relevant Traits of Optical Disc Standards

- **Optical storage involves a number of technical challenges**
- **Standards include a great amount of detail:**
  - Size, properties and mechanical configuration of media
  - Format of Data written to the discs
  - Modulation & Encoding Schemes
    - RLL encoding, NRZI modulation, and DC component suppression
    - Error Correction
  - Servo Signal Format
  - Etc.
- **Take away: High probability that any given standard is subject to Essential Patents from many companies**

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Optical Discs – Early Years

Discovision Associates

- **Paul Gregg credited with inventing optical disc technology in 1958**
- **Gregg starts Gauss Electrophysics to develop technology to store videos on laser-read optical discs in 1965**
- **MCA buys Gregg's company in 1968**
- **Joint venture with Philips yielded the laserdisc in the mid '70s—a commercial flop, as VHS and Betamax became consumer's choice**
- **Pioneer acquires DVA in 1989; DVA becomes a patent licensing entity**

- **Today, DiscoVision's license activities extend to Laserdisc, CD, DVD and other optical disk technologies. A lawsuit in Delaware has held that one of Discovision's patents is a basic blocking patent of the CD format.**

1st Generation: Compact Disc Technology

Technology Development:

- **1979: Philips and Sony jointly developed the audio compact disc**
- **the audio CD technology combined Philips technology for making the CDs as well as a modulation scheme, and Sony's method for error correction codes**
- **The technology was eventually adapted and expanded to encompass CD-ROM, CD-R, CD-RW, VCD, and others**

Standards:

- **"Rainbow Books" maintained by Philips and available for licensing**

Patent Pools:

- **Philips as Licensing Entity for CD-R & CD-RW**
- **CD (Philips & Sony)**
- **CD-R (Philips, Sony & Taiyo Yuden)**
- **CD-RW (Philips, Sony & Ricoh)**

2nd Generation: DVD

Technology Development:

- **DVD, also known as Digital Versatile Disc or Digital Video Disc, is an optical disc storage media format with greater storage capacity than CDs**
- **Development History**
  - Two Competing Standards under Development in the early 1990's
    - Camp 1: Sony, Philips
    - Camp 2: Toshiba, Hitachi, Time Warner, Pioneer, Matsushita, JVC, etc.
  - Industry (e.g., IBM, Apple, HP, etc.) put pressure on competing camps to merge into one standard
  - Resulted in DVD standard, incorporating technology from both factions
- **DVD Variants include*: DVD-ROM (read only memory); DVD-R and DVD+R (recordable); DVD-RW (re-writable), DVD+RW, and DVD-RAM (random access memory).***

Standards:

- ***DVD Forum maintains the standards (although ECMA has also published versions of some)***

Patent Pools:

- **DVD6C (Hitachi, JVC, Matsushita, Mitsubishi, Sanyo, Sharp, Toshiba, Warner, Samsung)**
- **DVD3C (Sony, Philips, Pioneer, LGE)**

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3rd Generation: High Definition DVD War

Technology Development

- ***Around 2002: Industry looked to increasing capacity beyond DVD based on shorter wavelength laser technology and need arising from HDTV; competition developed between Blu-Ray (Sony, Philips) and HD-DVD (Toshiba)***
- ***Around 2005-06: Unlike DVD, industry pressure did not yield compromise; but, HD-DVD eventually lost in the market.***
- ***In 2008, Toshiba withdraws HD-DVD and, in 2009, announces plans to bring Blu-Ray compatible devices to market.***

Standards:

- ***Philips maintains technical specifications for Blu-Ray;***
- ***Implementers may purchase license to technical specifications and branding licenses***

Patent Pools:

- ***Philips, Sony & others are still trying to form a patent pool; Philips has come out with an interim license (Philips Patents Only) in the meantime.***

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Strategic Considerations for R&D Efforts and Intellectual Property Holders

Standardization & Licensing Generally

•Why: many technologies require standardization for utility and market expansion; so patent owners have a choice: do not license and keep the technology proprietary and closed, often restricting market growth; the second option is to license freely and benefit from market expansion

•Technology Heading for Standardization? Patents can offer a hedge.

- •Patent your technologies aggressively in the areas likely subject to standardization to increase chance of having assets that can be leveraged commercially (such as in Patent Pools)
- •Identify areas of past and continuing Research & Development also related to areas of possible standardization for next generation technologies
- •Anticipate problems associated with competing approaches and prospectively patent solutions
- •Monitor standards activities for targeted IP portfolio development

• Participation in Standards Bodies

- •Ability to influence development of standard

Patent Pools: Pros and Cons

Advantages:

- patent pools may remove blocking patents
- one-stop access to intellectual property rights needed for a certain technology or standard
- Patent pools may encourage the rapid development and implementation of standardized protocols & technology
- Patent pools may also reduce royalty stacking and hold out problems

Disadvantages:

- Pools may have anti-competitive effects, such as:
- inflating the cost of licensing by pooling competitive technologies, reducing incentives to innovate or challenge weak patents

Antitrust Concerns and DOJ Guidance

Concerns:

1) Pools involving patents on substitute technologies
   -reduce competition and increase prices;

2) Pools reducing incentives or ability to innovate
   -overly-broad grant backs of future innovations to the pool;
   -inability of pool members to independently license;

3) Pools creating possibility for collusion

Assessing Anticompetitive Effects

- Careful consideration of the Department of Justice's Antitrust Guidelines
- Business review letters may be appropriate in these circumstances

- Patent pools should not be used to inflate the value of invalid, unenforceable, inapplicable, or otherwise undesirable patents

Evaluate use of possible safeguards for structure of patent pool, including:

- limiting the pool to "essential" patents as determined by an independent expert;
- providing a method to remove patents found to be invalid, unenforceable or no longer essential;
- allocating royalties in part based on the number of patents in the pool;
- the retention by pool members of the ability to license their patents independently;
- willingness to license all interested parties on a non-discriminatory basis.
- limiting grantback rights to essential patents and providing for compensation on the same terms as for other pool members;
- engaging independent administrator and arbiter of "essentiality" determination to reduce possibility of collusion.

Participation in Patent Pools: For Businesses Individually

Factors to Consider:

•Relative Strength of Patent Portfolio

•Whether the company actually intends to participate in the relevant market

- Pool Participation offers efficient way to obtain licenses from other industry players, and offset costs of such licenses
- Pool facilitates adoption of technology and expansion of market

•Possibility of exacting more revenues by avoiding RAND commitments and licensing independently

•Whether the company participated in developing the standard

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