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Patent Protection for Inventions Implemented In Software

ABPI Annual Conference 2014

August 26, 2014 Sao Paulo, Brazil

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The content of this presentation solely reflect the views of Mr. Wadsworth, and not the views or positions of Qualcomm Incorporated.

Challenges for Innovators in the ICT Industry

Concerns Regarding Intellectual Property Protection

- The industrialized countries of the world have demonstrated how strong intellectual property protection fosters economic and job growth

- For example, Qualcomm develops cutting edge mobile technology through innovative R&D, which it funds on a continuing basis with licensing revenues from its strong patent portfolio (The Virtuous Innovation Cycle)

- Making its technology globally available, through numerous license agreements and the sale of leading edge chipsets and software, has resulted in a robust competitive market for wireless communication devices, resulting in lower and lower prices for such devices, and increasing their availability to more and more of the global population

- Over the past decade however, there have been increasing attempts to weaken patent protection for software, based on anecdotal and philosophical commentary

- By example, using the semiconductor industry, it will be demonstrated why it is more important now than ever to provide strong patent protection for computer program inventions

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Incremental Innovation

- Incremental innovation does not equal trivial unpatentable innovation

- Incremental innovation is not limited to sw innovation; today whether to implement an invention in hw or sw is a design choice

- Innovation is generally comprised of two general types: Evolutionary(i.e. incremental) and Revolutionary:

  - Evolutionary innovation is eligible for patent protection as long as it is novel and non-obvious (i.e. has inventive step) regardless of the field of technology it is implemented in (TRIPS requirement); therefore characterizing innovation as incremental should not result in a conclusion that it should per se be excluded from patentability, and it should be patentable as long as it meets the novelty and inventive step tests

  - Revolutionary innovation is innovation that is sometimes referred to as pioneering or disruptive and typically results in unique solutions to a problem

Technical/Commercial Background

- Software programs are typically provided to end users either by way of magnetic or optical media, or by wired or wireless transmission

- As semiconductor devices become more highly integrated and operate at significantly faster speeds, more and more of the complex functionality of such devices is implemented in software

- More and more inventions arise from software development and are preferably implemented in software rather than hardware

- This creates a need for an adequate scope of patent protection so that the software developer/patent holder can either prevent the unauthorized use of its patented technology or receive adequate damages to compensate for infringement of the patent

Semiconductor Industry Associations Example

- The World Semiconductor Council, composed of the CEO's from the U.S., Japan, Europe, Korea, Chinese Taipei, and China semiconductor industries, issued a joint statement in May, 2007 which stated:

  – *"As semiconductor devices become more highly integrated and operate at significantly faster speeds, more and more of the complex functionality of such devices is implemented in software. It thus becomes imperative for all countries to provide meaningful patent protection for software inventions so that they receive the same level of patent protection as inventions implemented in hardware. (i.e. so that infringing sw manufacturers are directly liable for patent infringement)*

    The WSC asks its members to discuss with their governments and authorities, if said meaningful patent protection for software is not available, the possibility of expanding the scope of protection to allow the software invention patent owner to enforce its patent against all types of infringers, including software manufacturers and distributors".

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Patent Background

- The form of patent protection must take into account the commercial realities of how technology and inventions are implemented and distributed throughout the supply chain

- Software manufacturers typically distribute their products either by way of magnetic or optical media, or by wired or wireless transmission

- Customers of the software manufacturer then typically copy the software into an intermediate semiconductor device or into their end use product

- Thus, in many cases, it is the software manufacturer that integrates functionality into its product that infringes a patent

- Such infringing activities by software manufacturers require that the patent system provide for claim forms that make the manufacturer directly liable for those infringing activities

Patent Background (continued)

- The claims of a patent define the scope of protection
- Claims can be written in many forms that provide various scopes of protection
- For software inventions, protection may be afforded by many types of claims, including method claims, embedded sw claims and computer program product claims
- A sample claim method would be:
  - A method for providing notification of an incoming phone call, comprising:

    recognizing the incoming phone call; and providing notification of the call.

Patent Background (continued)

- A sample embedded sw claim would be:
  - An electronic device comprising:

    code for causing the device to recognize an incoming phone call; and

    code for causing the device to provide notification of the call.

- A sample computer program product claim would be:
  - A computer program product, including computer readable program code embodied in medium, for causing a computer to provide notification of an incoming call, comprising:

    code for causing a computer to recognize an incoming phone call; and

    code for causing a computer to provide notification of the call.

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Patent Background (continued)

- Types of Patent Infringement
  - Direct Infringement
    - Occurs when each and every element of claim is included in a single product or process
  - Indirect Infringement
    - 35 U.S.C. 271 Infringement of patent
      - (b) Whoever actively induces infringement of a patent shall be liable as an infringer;
      - (c) Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination, or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use, shall be liable as a contributory infringer.
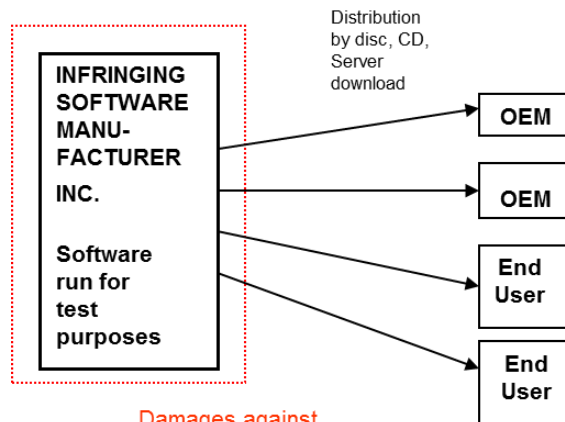
Patent Background (continued)

- Types of Patent Infringement (continued)
  - Examples of Evidence Required under 35 USC 271 (b) and (c)

    - Knowledge that the end product or process will directly infringe the patent
    - The provided device or component has no non-infringing use
    - The provided device or component is not a staple article of commerce
    - Direct infringement must also be proven
    - Specifically for 35 USC 271 (b), case law establishes proof of intent as a necessary element for a claim of inducement;
    - Burden is on the patent holder to prove each of the foregoing factually intensive criteria
  - The ability for patent holders to bring infringement actions against direct infringers provides more predictability and certainty for the legal system

Patent Background (continued)

- Types of Patent Infringement (continued)
  - Typical Actions That May Be Available Against a Software Manufacturer Can Vary Based on Type of Patent Claim as in these examples:
    - Method Claim
      - Direct Infringement when software is tested (damages may be limited)
      - Indirect Infringement may occur when software is provided to customers, who then in turn engage in infringing conduct
    - Embedded Software Claim
      - Indirect Infringement when software is provided to direct infringers
    - Computer Program Product (or Computer Readable Medium) Claim
      - Direct Infringement for each copy of the software made, used or sold
    - Computer Program Claim (EPO and KIPO allow these)
      - No limitations on form of distribution
  - Other than Computer Program claims, CRM claims typically provide the most effective and efficient means to protect inventions implemented in software

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Hypothetical Damages Analysis For Infringing Software Manufacturer

Method Claim

Distribution by disc, CD, Server download

INFRINGING SOFTWARE MANU-FACTURER INC.

Software run for test purposes

OEM

OEM

End User

End User

Damages against INFRINGING SOFTWARE MANUFACTURER may be limited, for example, to number of times software is run for test purposes.

Computer Program Product Claim

Distribution by disc, CD, Server download

INFRINGING SOFTWARE MANU-FACTURER INC.

Software run for test purposes

OEM

OEM
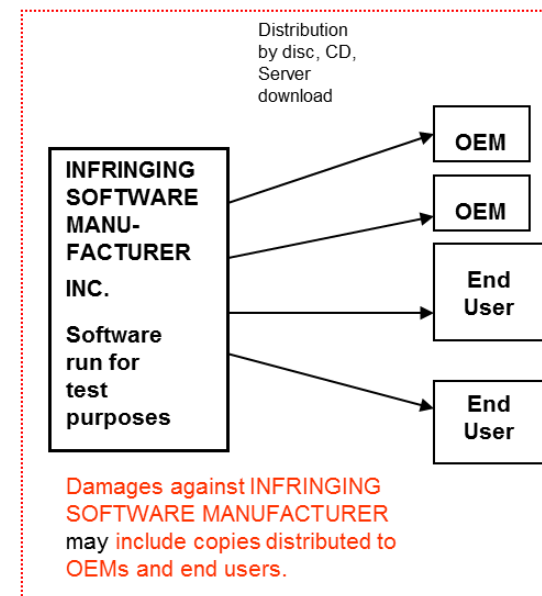
End User

End User

Damages against INFRINGING SOFTWARE MANUFACTURER may include copies distributed to OEMs and end users.

Hypothetical Damages Analysis For Infringing Software Manufacturers (continued)

- Software Manufacturer only tests 1 out of every 10 programs it sells and distributes and has sold and distributed 10,000 infringing programs
- The method claim is only infringed when the manufacturer tests the product and the computer program product claim is only infringed when the program is sold and distributed

- Assuming a reasonable royalty is $1 for practicing method and also for making or selling and distributing the program, the following damages awards may result:

  – Damages for infringement of method claim = 1000 (# of times program is tested) X $1 = $1000

  – Damages for infringement of computer program product claim = 10,000 X $1 = $10,000

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Conclusion

- If the scope of patent protection for software is limited to method and embedded software claims, and does not include at least computer program product or CRM claims, then the patent holder may be deprived of its' rightful compensation for all products that infringe its' patent!

Copyright Background

- Copyright Law only protects the literal copying of the source code or object code form of the software program (i.e. the creative expression embodied in the program, as a literary work), but does not protect the inventive concept implemented by the program (i.e. the general function of the program);

- Reverse engineering through the use of clean room techniques, which would result in infringement of a patent covering the functionality provided by the reverse engineered product, would not violate copyright law;

- Relying on copyright law as the sole form of IP protection for software creates a gap in protection for innovation and discourages investments in research and development, which provides economic growth, job creation and new products that benefit all of society.

Recommendations

- Brazilian Patent Law only excludes computer programs *per se* from patentability, so any interpretation must include analysis of the meaning of *per se*, which is obviously a qualification of what attributes of a computer program can be protected;

- Logically, the *per se* limitation would mean the source code or object code of a computer program cannot be literally claimed in a patent; but a computer program that performs the functions enabled by the source or object code should be protectable;

- In order to foster research and development , job growth and economic growth in Brazil and taking into account the commercial realities of the ever increasing use of software to implement product functionality, Brazil should allow patent protection for software inventions at least in the form of computer program product or CRM claims;

- This could be easily accomplished by applying the test used by the EPO for such claims, namely ensuring that the computer program has a technical effect when run on a computer, and approving the draft guidelines related to software inventions.

Thank You!