Patenting Software, Electronic and Network Computing –Obtaining Patents that will Support Determination of Infringement (Selected Topics)

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Acceptable Software Claim Styles

- Method Claims - Patentability under *In re Bilski – Machine or Transformation (MOT) test OK - No abstract ideas*
- *System and Article claims OK*
- Computer Readable Medium Claims - In re Beauregard – Depends on underlying process claim
- Transient claims under *In re Nuijten - not allowed*

Acceptable Software Claim Styles (Cont.)

- Test for and Scope of Means plus Function claims
- Transient claims under *In re Nuijten - not allowed*
- Apparatus and System claim elements may be presented in Means plus Function format

Background

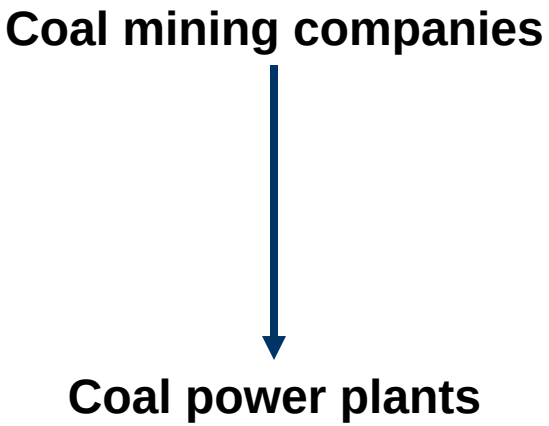
- Post Solution Activity — Diehr
- Presolution Activity or Refinement of Data Gathering — Taner
- Recite Specific Apparatus — Iwahashi
  - Specific Structural Element
  - Means Plus Function

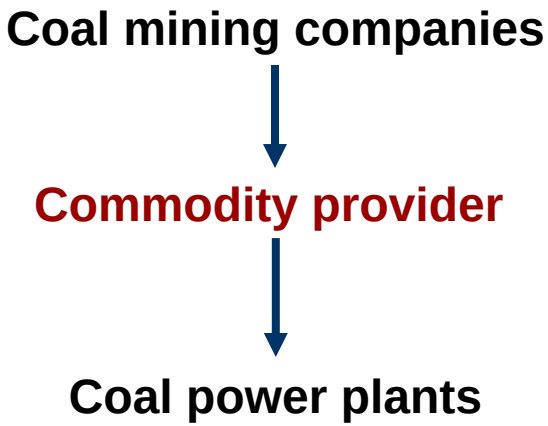
Abstract Idea – *Benson*, *Flook*, and *Diehr*

- ***What is an abstract idea?***
  - Is it fair to say "what is an abstract idea" is an abstract question?
- Best chance – Limit the practical application as narrow as possible
  - Single **field of use** not sufficient
    - General business practice probably not okay
  - Single, **specific** use may be okay
    - **Even better** – If the use is the type that has been historically patent-eligible (*e.g.,* industrial process in *Diehr*)
  - Token postsolution components not sufficient
    - Mathematical algorithm simply performed on a general-purpose computer not okay

Patentability under *In re Bilski*

- **Application No. 08/833,892** – Directed to a method of hedging risk in the field of commodities/options trading.





Bilski - Claim 1

- 1. A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of:
  - (a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;
  - (b) identifying market participants for said commodity having a counter-risk position to said consumers; and
  - (c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.

Bilski – Fed. Cir. Decision

- Affirmed BPAI's decision (9-3)
- "Useful, Concrete & Tangible Result" Test no longer adequate
  - Adopted in *State Street* (1998) & *AT&T* (1998)
- **Machine-or-Transformation Test is the sole test**

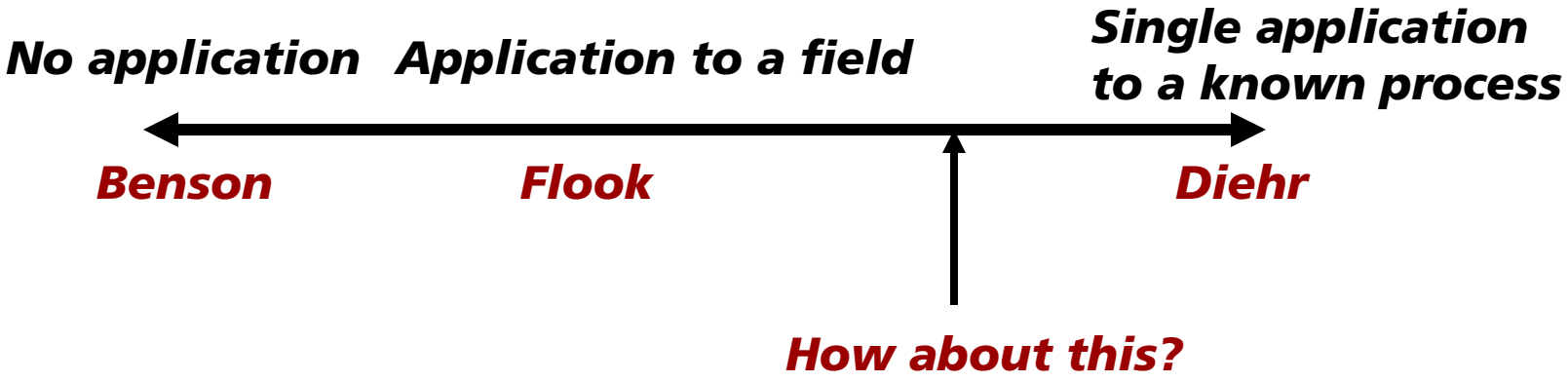
Supreme Court's Decision

- S. Ct. – Affirmed Fed. Cir.'s decision for different reasons
  - *Bilski v. Kappos*, 561 U.S. ___, (2010)(June 28, 2010)
  - All Justices agreed that the method claims are directed to an **abstract idea** and therefore unpatentable
- **Standard – Same old, same old!**
  - Machine-or-Transformation Test is **not** the sole test
  - "Abstract idea" articulated in *Benson*, *Flook*, and *Diehr* applies
- **Business method still alive!**
  - 5-4 Decision
    - 5 - Kennedy, Roberts, Thomas, Alito & Scalia
    - 4 - Stevens, Ginsburg, Breyer & Sotomayor

Machine-or-Transformation Test

- Machine-or-Transformation Test is not the **sole** test
  - CAFC's reasoning based on *Benson*
    - "Transformation and reduction of an article 'to a different state or thing' is **the** clue to the patentability of a process claim that does not include particular machines."
  - S. Ct. – **Not intended to be exclusive**
    - *Benson* – "We do not hold that no process patent could ever qualify if it did not meet [machine-or-transformation] requirements."
    - *Flook* – "[W]e assume that a valid process patent may issue even if it does not meet [machine-or-transformation test]" (Footnote 9)
    - But recognized the MOT test as "a **useful and important clue or investigative tool.**"

Abstract Idea – *Benson*, *Flook*, and *Diehr*



CAFC's Reaction – Abstract Idea

- *Research Corp. Technologies Inc. v. Microsoft*, 627 F.3d 859 (Fed. Cir. 2010)
  - **Guidance on "Abstract Idea"**
    - 1st Fed. Cir. case for computer-related inventions that does **not satisfy the MOT test** but **passes the "abstract idea" hurdle**
  - Judges – Rader, Newman & Plager

CAFC's Reaction – Abstract Idea

- **U.S. Patent No. 5,111,310**
  - **1.** A method for the halftoning of gray scale images by **utilizing a pixel-by-pixel comparison of the image against a blue noise mask** in which the blue noise mask is comprised of a random nondeterministic, non-white-noise single valued function which is designed to produce visually pleasing dot profiles when thresholded at any level of said gray scale images.
  - **2.** The method of claim 1, wherein said blue noise mask is used to halftone a color image
- **U.S. Patent No. 5,341,228**
  - **11.** A method for the halftoning of color images, comprising the steps of **utilizing, in turn, a pixel-by-pixel comparison of each of a plurality of color planes of said color image against a blue noise mask** in which the blue noise mask is comprised of a random nondeterministic, non-white-noise single valued function which is designed to provide visually pleasing dot profiles when thresholded at any level of said color images, wherein a plurality of blue noise masks are separately utilized to perform said pixel-by-pixel comparison and in which at least one of said blue noise masks is independent and uncorrelated with the other blue noise masks

CAFC's Reaction – Abstract Idea

- **Unlikely abstract for invention with specific applications or improvements to technologies in the marketplace**
  - **"[I]nventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract** that they override the statutory language and framework of the Patent Act."

USPTO's Reaction

- Interim Guideline of July 27, 2010
  - Factor-based inquiry
    - A list of factors to be considered in an abstract idea determination of a method claim
    - Factors not intended to be exclusive or limiting.
    - Each of the factors relevant to the particular patent application should be weighed
    - The presence or absence of a single factor will not be determinative
  - "Examiners will recognize that **the machine-or-transformation test** set forth in Section II(B) of the *2009 Interim Instructions,* although not the sole test for evaluating the subject matter eligibility of a method claim, **is still pertinent** in making determinations pursuant to the factors listed below."

Computer Readable Medium Claim

- A computer readable medium having a computer program stored thereon, the computer program when executed by a processor performing the steps of:
- Considered patentable by PTO Director without testing at Federal Circuit - Beauregard

Beauregard Claim of Research Corp. –Not Abstract

- **U.S. Patent No. 5,111,310 – Manufacture Claim 2**

2. A **computer readable medium** containing program instructions for detecting fraud in a credit card transaction between a consumer and a merchant over the Internet, wherein execution of the program instructions by **one or more processors of a computer system** causes the one or more processors to carry out the steps of:

a) obtaining credit card information relating to the transactions from the consumer; and

b) verifying the credit card information based upon values of plurality of parameters, in combination with information that identifies the consumer, and that may provide an indication whether the credit card transaction is fraudulent,

wherein each value among the plurality of parameters is weighted in the verifying step according to an importance, as determined by the merchant, of that value to the credit card transaction, so as to provide the merchant with a quantifiable indication of whether the credit card transaction is fraudulent,

wherein execution of the program instructions by **one or more processors of a computer system** causes that one or more processors to carry out the further steps of;

obtaining information about other transactions that have utilized an **Internet address** that is identified with the credit card transaction;

constructing a map of credit card numbers based upon the other transactions; and

utilizing the map of credit card numbers to determine if the credit card transaction is valid.

Beauregard Claim - Abstract

- *CyberSource Corp. v. Retail Decisions Inc.*, 99 USPQ2d 1690 (Fed. Cir. 2011)
  - **Further guidance on "Abstract Idea"**
  - Beauregard Claim
  - Use of Computer in Method
  - Judges – Bryson, Dyk, and Prost

Claim 3 of the ‘154 patent

3. A method for verifying the validity of a credit card transaction over the Internet comprising the steps of:

a) obtaining information about other transactions [utilizing] that have utilized an Internet address that is identified with the credit card transaction;

a) constructing a map of credit card numbers based upon the other transactions and;

b) utilizing the map of credit card numbers to determine if the credit card transaction is valid.

Beauregard Claim - Summary

- Beauregard claim
  - Look to **underlying invention** for patent-eligibility purposes
    - Regardless of what statutory category
    - If underlying invention is not patent-eligible, then the “computer readable medium” claim is also not patent-eligible.

In re Nuijten - Signal Claims

- Claim 14: "A signal with embedded supplemental data, the signal being encoded in accordance with a given encoding process and selected samples of the signal representing the supplemental data, and at least one of the samples preceding the selected samples is different from the sample corresponding to the given encoding process."

In re Nuijten - Signal Claims

- The Nuijten court found that a signal is not patentable even if tied to a transitory form (radio broadcast or light pulses in a fiber optic cable). The court could not fit a 'signal' into any of the four categories:

- **Process:** Process is defined in Section 100 as a "Process, Art, or Method." The 'art' term appears on its face different than a typically process — especially based on the constitutional statement of "useful arts." However, the CAFC refused to expand the meaning of process to include items that do not require an action. Thus, a signal is not a process

In re Nuijten - Signal Claims

- **Machine:** The Supreme Court defined a machine as "a concrete thing, consisting of parts, or of certain devices and combination of devices." Burr (1863). Under this definition, a signal is not a machine.
- **Manufacture:** The court limited a manufacture to an "article" produced by man. According to the court, an 'article' is not transient and cannot exist in a vacuum — both qualities of a signal. Thus, a signal is not a manufacture. Propagated signal not an article of manufacture?
- **Composition of Matter:** A transient electric signal is not a "chemical union, nor a gas, fluid, powder, or solid." Therefore, a signal is not a composition of matter.

Means-plus-function & Structure

- 35 U.S.C. § 112, 6th paragraph
  - An element in a claim for a combination may be expressed as a ***means or step for performing a specified function*** without the recital of structure, material, or acts in support thereof, and
  - such claim shall be construed to cover the corresponding ***structure***, material, or acts ***described in the specification*** and equivalents thereof.

Means Claim

- General Means+Function claim format:
  - (1) means for _____ (identify function), or
  - (2) step for _____ (identify function)
- Presumption: "means for" followed by a function invokes Section 112, 6th paragraph
- Presumption: not using "means for" followed by a function avoids invoking Section 112, 6th paragraph

Disclosure for Means Claim

- There must be adequate disclosure in the specification showing what is meant by the claim language.
- Structure that performs the claimed function must be disclosed in the specification.

Construction of Means Claim

- Literal Infringement under 112, sixth, occurs when the accused product:
  - Performs same (identical) function with the same corresponding structure or equivalent structure. In other words, the accused device performs the identical function in substantially the same way to achieve the substantially the same result.

Construction of Means Claim

- Infringement under the doctrine of equivalents of a Means occurs when:
  - Differences between the elements of the accused product and the claim elements are insubstantial
  - The function–way– result test is used to determine if the differences are insubstantial
  - Substantially the same function in substantially the same way to achieve substantially the same result.

Drafting Specification

- Must meet requirements under 35 U.S.C. 101
  - If software invention, include disclosure of computer hardware that implements code and flowcharts showing method.
  - Describe physical transformation (if applicable) caused by invention.
  - Positively recite the other statutory class (i.e., the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps
  - Avoid defining a computer readable medium as including a transmission medium, signal or carrier wave.

Drafting Specification

- Must meet requirements under 35 U.S.C. 112, first paragraph, namely written description, enablement, and best mode
  - Figures often include generic computer components or networks, screen shots, and flow diagrams illustrating the process
  - For software, focus is generally not on technical detail but on the method (process) being performed

Drafting Specification - Computer Programs

- Flowchart (High and Medium Level)
  - Parallel with broad and narrow claims
- Code Listing In Spec. or As Appendix
  - Source code not necessary but can be helpful (e.g. backup position)
- Portable code? Show disc and computer and claim as computer readable medium
- “Pseudocode” is OK
- Action, State, and/or Data Flow Diagrams

Database Application—Block Diagram

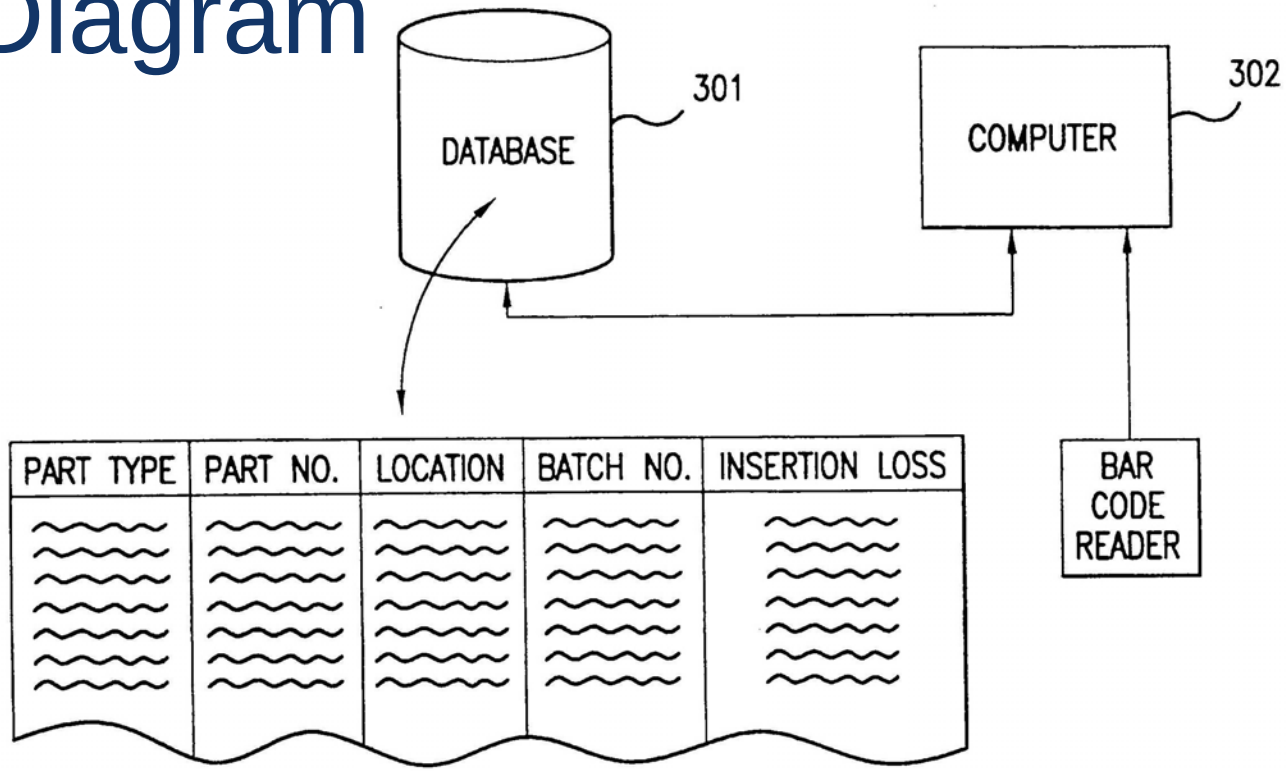
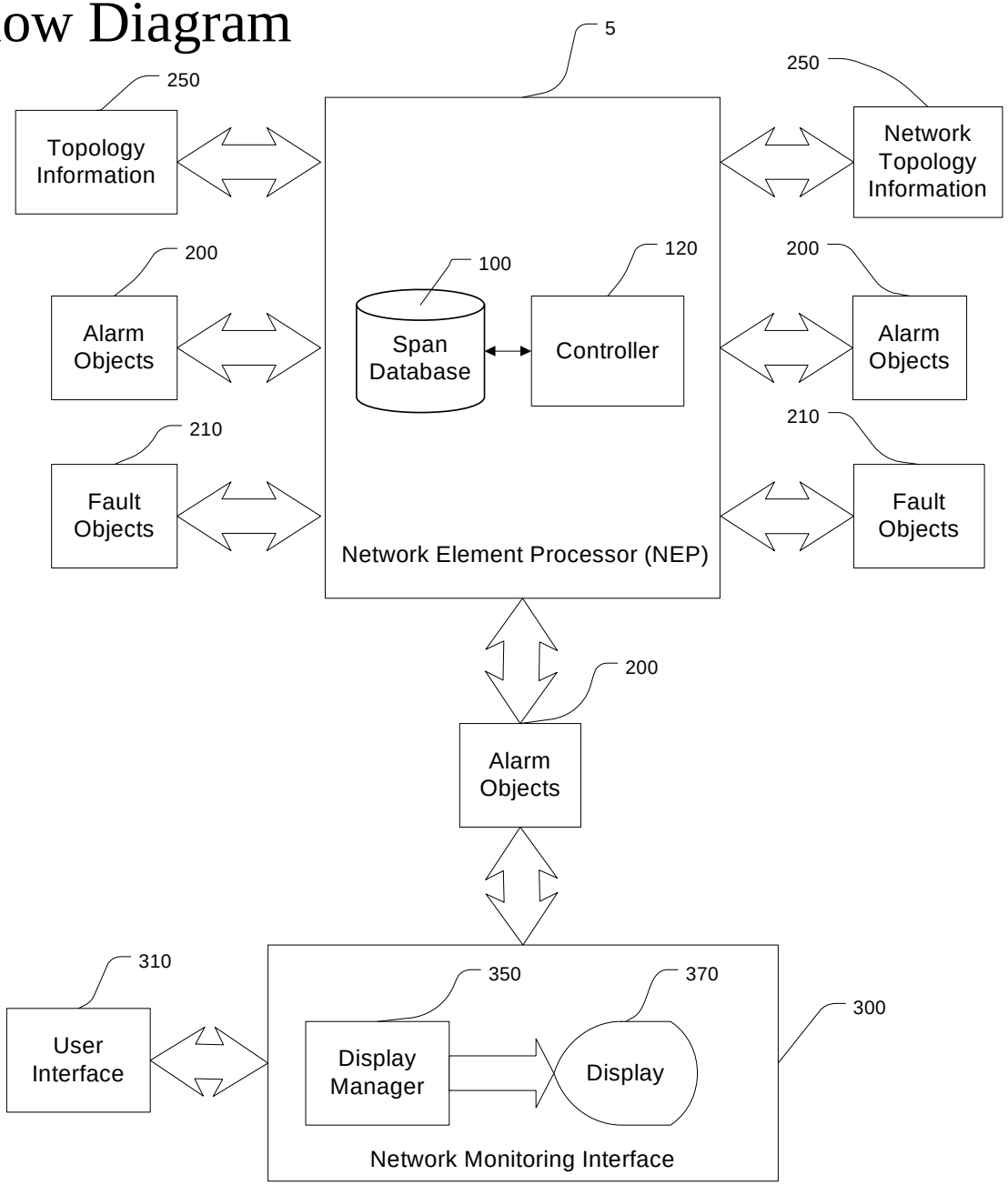


FIG.3

Data Flow Diagram



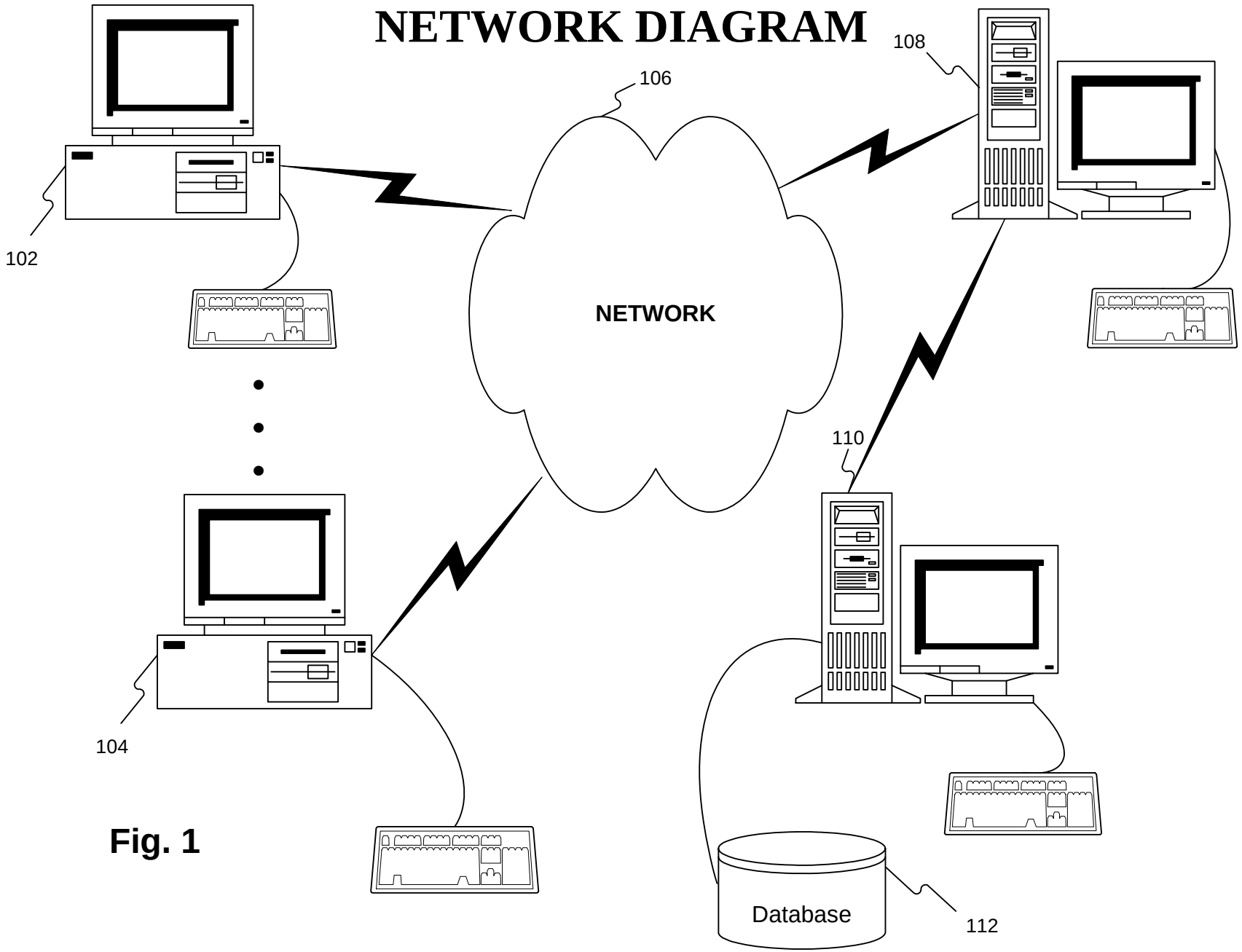


Fig. 1

Drafting Claims - Strategies

- Use Various Types of Claims When Possible:
  - Apparatus
    - Structural Apparatus
    - Means Plus Function
  - Method – MOT; or Research Corp
  - Computer readable medium (software on disc) – Watch for Cybersourse type problem
  - Data Structure/ Database

Drafting Claims – Strategies (Contd.)

- Some process claims without meeting the MOT test
  - Even better if claims can clarify that the invention is a specific application or improvement of technologies in the marketplace
- Some process claims with physical component(s) but not satisfying the MOT test
- Some process claims satisfying the MOT test as a fallback

Drafting Claims – Strategies (Contd.)

- **Try to meet Machine-or-Transformation Test**
  - **Tied to a particular machine**
    - Insignificant extra-solution activity **tied to a particular machine** may not be sufficient
    - Method simply conducted on a computer may not be sufficient
    - Better Chance - Method specifically reciting how the components of computer **interact** to conduct the invention
  - **Transformation** of a particular **physical object** into a different state/thing
    - Insignificant extra-solution activity of **physical transformation** may not be sufficient
- **Abstract Idea**
  - Avoid obvious mental steps
  - Limit claims to a specific application and/or use the approach in *Research Corp. Technologies Inc. v. Microsoft*

Drafting Claims – Strategies (Contd.)

- Where the invention is software which can be run on a general purpose computer, include at least one algorithm or pseudo-code for programming the computer to carrying out the function.
- The fact the specification enables on skilled in the art to make the invention does not mean that the specification provides sufficient disclosure of structure for 112, sixth paragraph purposes.

Drafting Claims – Strategies (Contd.)

- **Drafting strategies – Method Claims**
  - **Approach in view of the MOT Test**
    - Physical transformation
    - Tied to a particular machine – using dependent claims as a fallback position
      - Independent claim – tied to a particular machine **in view of USPTO's Interim Instructions** (E.g., "performing the following steps by a computer/processor")
      - Dependent claim – tied to a particular machine **in a more significant manner**

Drafting Claims – Strategies (Contd.)

- **Drafting strategies – Method Claims**
  - **Approach in view of *CyberSource/SiRF Technology Inc.***
    - Try to avoid **obvious mental steps**
    - A typical computer-related method claim comprising:
      - a data-gathering step;
      - an algorithm performing step using the gathered data to calculate, compare, analyze…; and
        - » Complexity of the algorithm & significance of the computer involved in the algorithm may affect the patent-eligibility
      - determining step based on the result of the algorithm performing step.
      - an extra step – applying the result of algorithm performing step or the determining step to a practical application (e.g., controlling operations of external device(s))
        - » Cannot be performed in human mind
        - » Limited to a practical application (the narrower the better)
        - » Insignificant post-solution activity insufficient

Modifications – Under US Law

- Not constrained by the original claims
- Any limitation supported by the spec.
  - Cannot be broader than the original spec.
  - Need not be literally supported by the original spec. or claims

U.S. Patent Infringement

- Drafted claims must be infringed to be effective.
- Direct Infringement - §271(a)
  - Each element of claim performed.
  - Must be by a “single entity”
    - Prior to 1986 no decision requiring single entity
    - Principals of Vicarious Liability may apply – what extent? Crux of issue

Indirect Infringement

- There must Direct Infringement to create liability for Indirect Infringement
- Contributory Infringement - §271(c)
  - a portion of the claimed invention “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 noninfringing use
- Inducement - §271(b)
    - Whoever actively induces infringement of a patent shall be liable as an infringer””

Multiple Actors -Vicarious Liability

- Acts of one actor imputed to another – “directs or controls”?
  - Control – Agency or contractual obligation
  - Direction
    - Is instruction to a customer sufficient? – Akamai – contract required performance of method step if customer decided to take advantage of service

Issue under En Banc review by Federal Circuit now.

- Akamai Technologies, Inc. v. Limelight Networks, Inc.
- McKesson Technologies Inc. v Epic Systems Corp.
- Both cases to be orally argued on November 18, 2011.
- If separate entities each perform separate steps of a method claim, under what circum-stances, if any, would claim be infringed?

Answer?

- Is there really a requirement for a single infringer?
- Agency, e.g. control required?
- What about directing, to what extent is direction sufficient.
  - Teaching, technical support, supplying software?
- Is there use of the system for system claims - Centillion

Multinational Practice of Patent Claim

- Steps of method or elements of system located in multiple countries.
- § 271(f) – components assembled outside U.S.
- § 271(g) – product shipped into U.S. made by process overseas
- §271(a) – territorial nexus – system as a whole used in the United States – see e.g. NTP, Inc. v. Research in Motion (Fed. Cir. 2005)

Claim Drafting Strategy

- Must have direct infringement by someone.
- Elements of claim should be largely practiced within U.S.
- Recommend Method, System and Article/Product claims were applicable.
- Make method claims recite a clearly defined product - §271(g) infringement.

Claim Drafting Strategy (2)

- Visualize how invention can be divided between multiple parties.
- Claim inventive method or system elements from perspective of single party.
- Should cover all perspectives (e.g. server, communications channel, client) that adopt inventive features.

Claim Drafting Strategy (3)

- Write client claim even though enforcement will be directed to server provider to ensure direct infringement in U.S.
- Problems
  - Difficult to predict how inventive technology will be divided between users/countries.
  - Number of claims needed to make infringement difficult to avoid increases complexity and expense of applications.

Questions?

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