

*A presentation
on
Software Patentability*

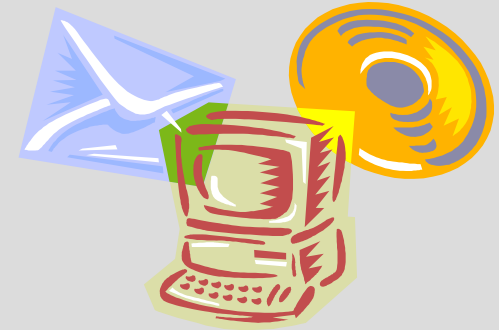


LEX ORBIS

Intellectual Property Practice

February 17, 2005

Software Patentability



- Basic Definition
- General Categories of Software
- Distinction between software and hardware is sometimes quite confusing
- The Intangibility of Software
- Why does this Intangibility matter?
- Program-created inventions in the real world

Software Patentability

- Why patents ? Why not copyright
 - Functional works of technology
 - Ideas, Methodologies, Processes, Techniques
 - Reverse engineering
 - Sequence, structure and organisation
 - Creative functional invention
 - Both are not mutually exclusive
 - Independent creation
 - User Interface & API



Key
Points

Software Patentability

Drafting the Application (Requirements)



- Software Invention Disclosure material
 - Functional design specification
 - Code or Pseudo code descriptions
 - Flowcharts
 - Screenshots
 - Software itself
 - High-level description of a software
 - Marketing materials
- Specification
- Drawings
 - Flowcharts
 - Hardware environment
 - Functional block diagrams
 - Data structures
 - Screenshots or illustrations of the screen

Software Patentability

What can be protected in software

CLAIMS

- Methods implemented in software
- System as a whole
- Individual system components
- Computer Readable Media
- Data structures
- API
- UI



Software Patentability



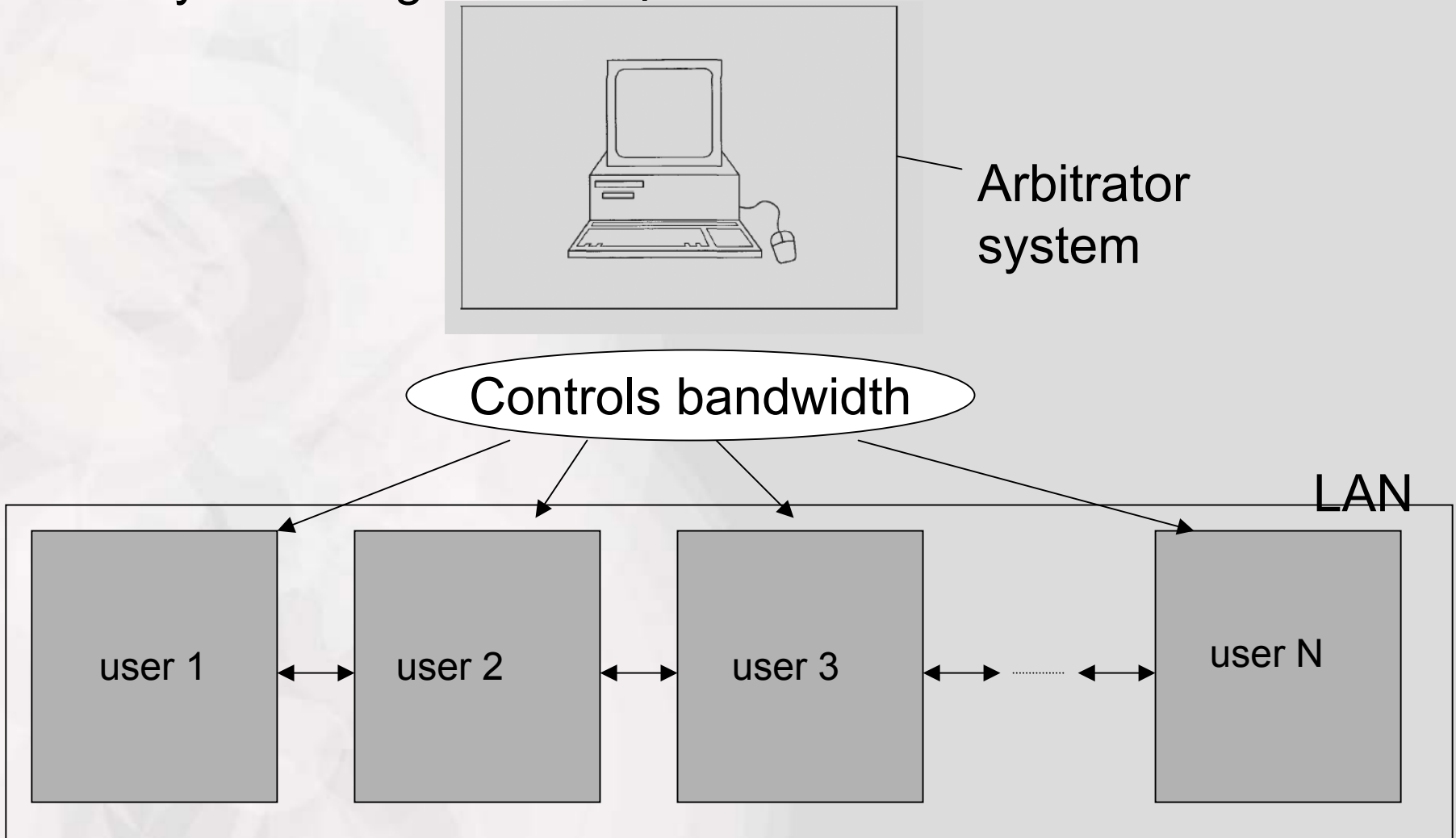
An Example Software invention

Consider a system to control the bandwidth (bandwidth arbitrator) in a Local Area Network .

This software keeps track of all active users on a network. It keeps a history (database) of how much bandwidth each user is using, how long they have been using it, and how much of the total network capacity is being used. It then applies “intelligence” rules taking all these factors into account and will slow down the heaviest users.

Software Patentability

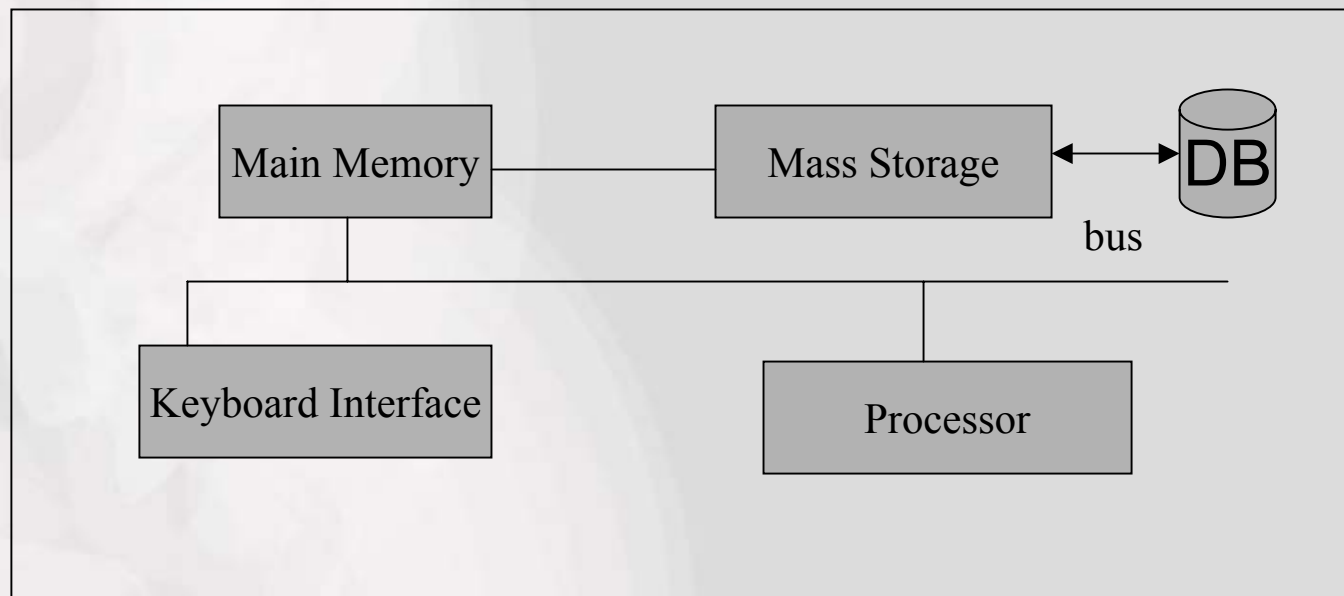
A system diagram to explain the above invention



Software Patentability

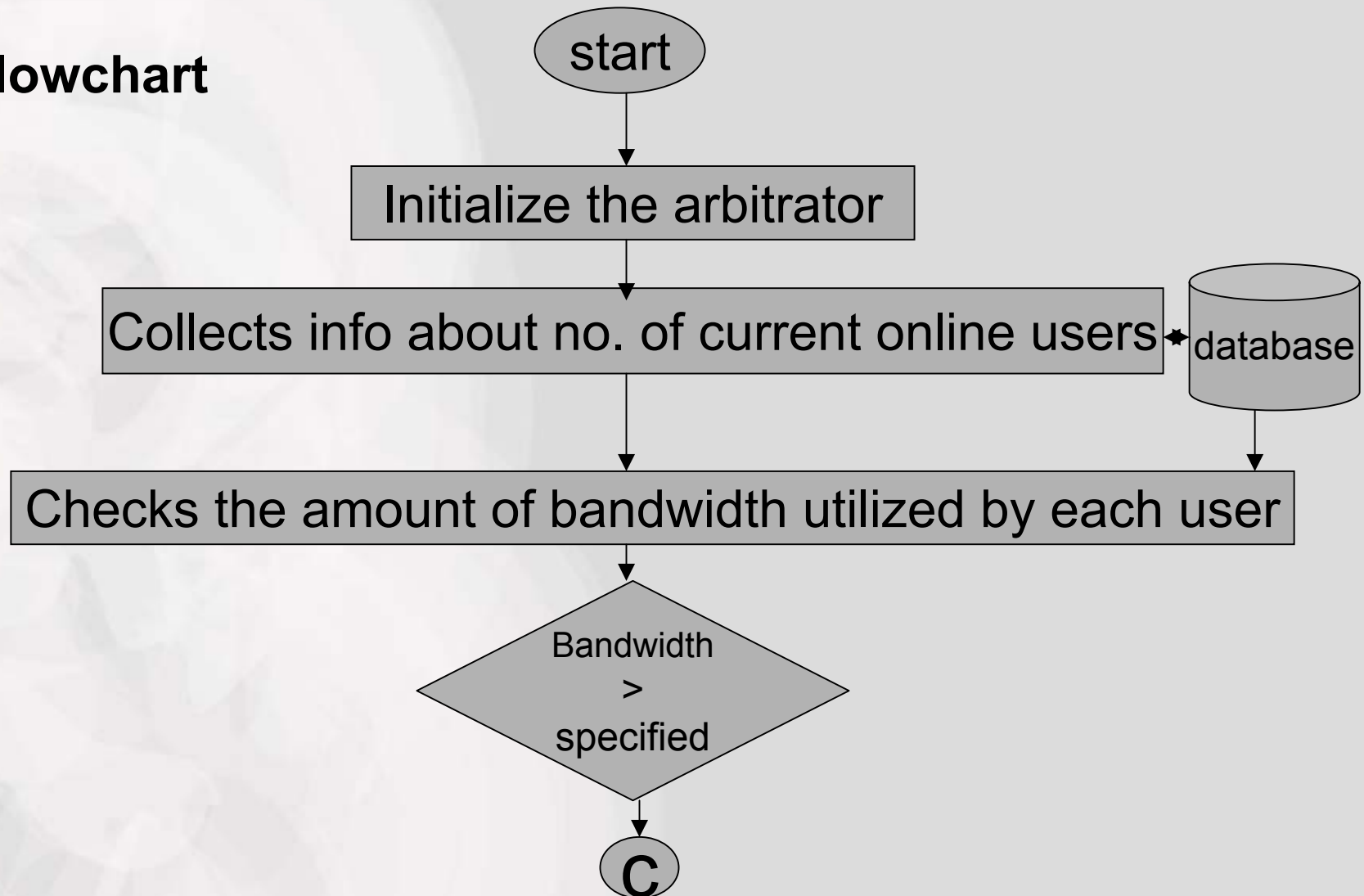
A block diagram to explain the arbitrator system

Arbitrator System

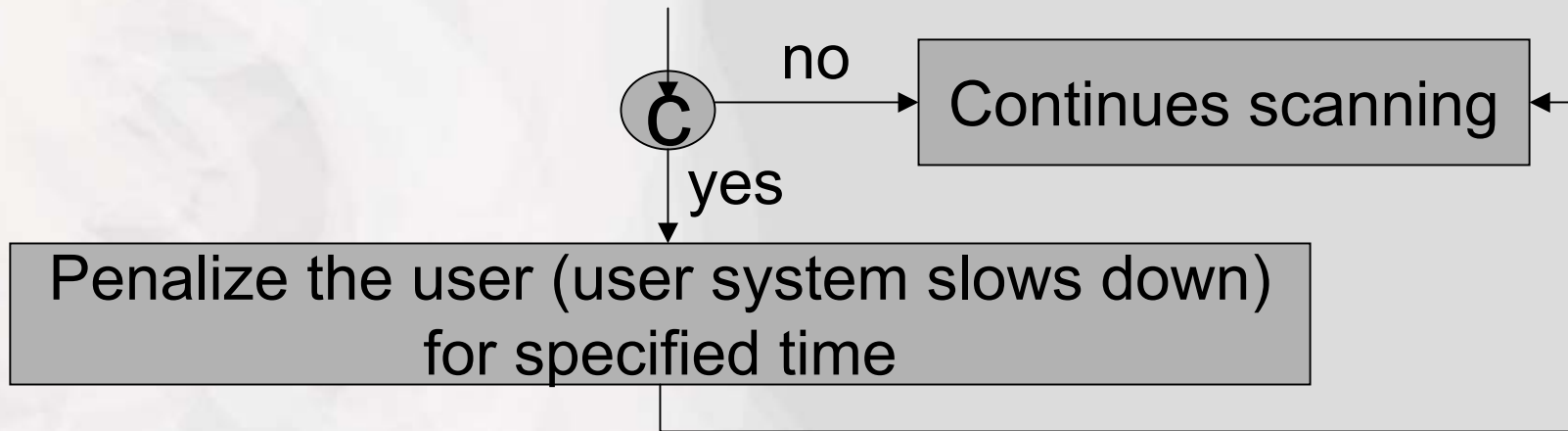


Software Patentability

Flowchart



Software Patentability



Software Patentability

Method claim

A computerized method for controlling bandwidth in a Local Area Network comprising:

maintaining a database for determining the bandwidth utilization of each user;

scanning on a periodic basis to check whether the utilized bandwidth is more than the specified bandwidth; and

controlling a printing device to print a report based on the status of the network capacity

Software Patentability

System Claim A

A system for controlling the bandwidth in a Local Area network comprising:

a database component operative to maintain a database determining the bandwidth utilization of each user;

a scanner component operative to periodically scan whether the utilized bandwidth is more than the specified bandwidth; and

a printer component operative to print a report based on the status of the network capacity.

Software Patentability

System claim B

A system for controlling the bandwidth in a Local Area network, comprising:

a storage device;

a printer; and

a processor programmed to:

maintain a database for determining the bandwidth utilization of each user;

scan periodically to check whether the utilized bandwidth is more than the specified bandwidth; and

print a report based on the bandwidth control

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System Claim C (means plus function claim)

A system for controlling the bandwidth in a Local Area network comprising:

means for maintaining a database for determining the bandwidth utilization of each user;

means for scanning on a periodic basis to check whether the utilized bandwidth is more than the specified bandwidth; and

means for controlling a printing device to print a report based on bandwidth control.

Software Patentability

A Computer Readable Medium Method claim

A computer-readable medium having computer executable instructions for performing a method comprising:

maintaining a database for determining the bandwidth utilization of each user;

scanning on a periodic basis to check whether the utilized bandwidth is more than the specified bandwidth; and

controlling a printing device to print a report based on bandwidth control.

Software Patentability

A Datastructure claim

A computer-readable medium having stored thereon a data structure comprising:

a first field containing data representing the user identification of the user in the Local Area Network;

a second field containing data representing amount of bytes the user has received for the last 3 seconds;

a third field containing data representing the average weight of the received bytes.

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An API claim

A set of application program interfaces embodied on a computer-readable medium for execution on a computer in conjunction with an application program that controls the bandwidth in a Local Area Network between the users, comprising:

A first interface to initialize the arbitrator;

A second interface configured to update the parameters of the arbitrator; and

A third interface to output the reporting of bandwidth control.

Software Patentability

An UI Claim

In a computer system having a graphical user interface including a display and a selection device, a method of providing and selecting from a menu on the display, the method comprising:

retrieving a set of menu entries for the menu, each of the menu entries representing an arbitrator characteristic;

displaying the set of menu entries on the display;

receiving a menu entry selection signal indicative of the selection;

device pointing at a selected menu entry from the set of menu entries; and

in response to the signal, performing a search of a database to determine the user utilizing the excessive bandwidth.

Software Patentability

Means-Plus-Function Elements of Claims Language

- Method claims (defines novel actions)
- Apparatus claims (defines novel structure)
- A third type known as ‘Means Plus Function’, a hybrid between these two types.

A claim to a Television may include an element that recites “picture tube means for displaying a television Picture”.

- Interpretation of this claim depends on the specification

Software Patentability

However, software patents presents a unique problem when means plus function claims are used.

- easily modifiable
- General purpose computer

Case law

In *Alappat*, the independent claim at issue, claim 15, reads as follows:

A rasterizer for converting vector list data representing sample magnitudes of an input waveform into anti-aliased pixel illumination intensity data to be displayed on a display means comprising :

- a. means for determining the vertical distance between the endpoints of each of the vectors in the data list;
- b. means for determining the elevation of a row of pixels that is spanned by the vector;
- c. means for normalizing the vertical distance and elevation; and
- d. means for outputting illumination intensity data as a predetermined function of the normalized vertical distance and elevation

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Thus claim 15 can be read as

A rasterizer [“a machine”] for converting vector list data representing sample magnitudes of an input waveform into anti-aliased pixel illumination intensity data to be displayed on a display means comprising :

- a. [an ALU configured to perform an absolute value function, or an equivalent thereof] for determining the vertical distance between the endpoints of each of the vectors in the data list;
- b. [an ALU configured to perform an absolute value function, or an equivalent thereof] for determining the elevation of a row of pixels that is spanned by the vector;
- c. [a pair of barrel shifters, or equivalents thereof] for normalizing the vertical distance and elevation; and
- d. [a ROM containing illumination intensity data, or an equivalent thereof] for outputting illumination intensity data as a predetermined function of the normalized vertical distance and elevation

Software Patentability



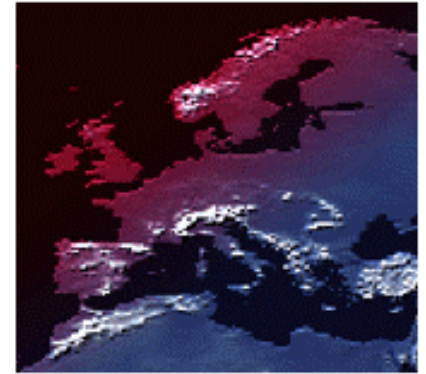
Rule from Alappat

Thus the rule from Alappat was that the ‘structure’ of software means element is a General Purpose Computer programmed to perform particular functions pursuant to instructions from the program software.

Literal infringement of a Means-Plus-Function element

- Identical function (claim)
- Identical structure (specification)
- or its Equivalent

Software Patentability



Software patents and Europe

- European patent convention excludes ‘computer programs as such’ from patentability.
- Technical effect
- Technical character
- Patentable – ‘the said technical effect must be more than the “normal” physical interaction between a computer and a program’

Software Patentability

The Patent-Copyright Debate

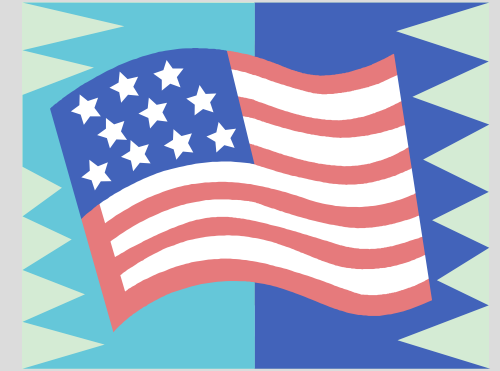
Do we remember?

- TRIPs
- Partial infringement
- Adaptation

Software Patentability

The US position

- Software patents allowed
- The Freeman Walter Abele test [Gottschalk v. Benson]
- The USPTO Guidelines for computer related inventions, 1996
- Rejection of the Freeman Walter Abele test [State Street Bank & Trust Co. v. Signature Financial Group Inc.]
- Modification of the guidelines



Software Patentability

The European Position

Article 52 of the European Patent Convention

- 2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
 - (a) discoveries, scientific theories and mathematical methods;
 - (b) aesthetic creations;
 - (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
 - (d) presentations of information.

- (3) The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

Software Patentability



The Indian position

Section 3

What are not inventions – The following are not inventions within the meaning of this Act, -

...

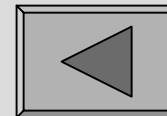
(k) a computer programme *per se* other than its technical application to industry or a combination with hardware;

...

Software Patentability

The per se jurisprudence

- Computer programme
- Computer programme per se



Software Patentability

Article 27

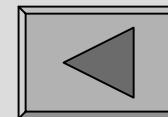
Patentable Subject Matter

1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. (5) Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.

Article 10

Computer Programs and Compilations of Data

1. Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971).



Software Patentability



Any Questions



Thank You