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Señora Jefe de la
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Superintendencia de Industria y Comercio
E. S. D.

SUPERINDUSTRIA Y COMERCIO
Folios: 85
Radicacion : 04063033 00000003
Fecha (AND): 2004-10-19 16:48:37
Tramite : 002 PATENTES D 1 REGISTRO/ 329 COMPLEMEN
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

Trámite : 002
Evento : 001
Actuación: 329

Referencia : Expediente No. 04.063.033
Solicitante : NOKIA CORPORATION
Asunto : Solicitud de patente para: DESCARGA PROGRESIVA
DE CONTENIDO DE MULTIMEDIA TEMPORIZADA.
Fecha de solicitud : 1° de julio de 2004.

Yo, Emilio FERRERO, obrando como apoderado del solicitante en el asunto antes identificado, atentamente presento con este escrito, un CD-ROM certificado expedido por la Oficina de Marcas y Patentes de los Estados Unidos de América que contiene copia de la solicitud No. 10/865.670 del 9 de junio de 2004, e igualmente presento la copia certificada de la solicitud No. 60/484.507 del 1° de julio de 2003, con sus respectivas traducciones al español de las reivindicaciones, en las cuales se basa la reivindicación de prioridad en este asunto.

Atentamente solicito que se continúe con la tramitación de la solicitud.

Bogotá, 19 OCT. 2004
Señora Jefe,


EMILIO FERRERO
T.P.A. No. 31.929

COLO 05995 801 001 5
MRE/MRM/
ID-000046/WPCL5995

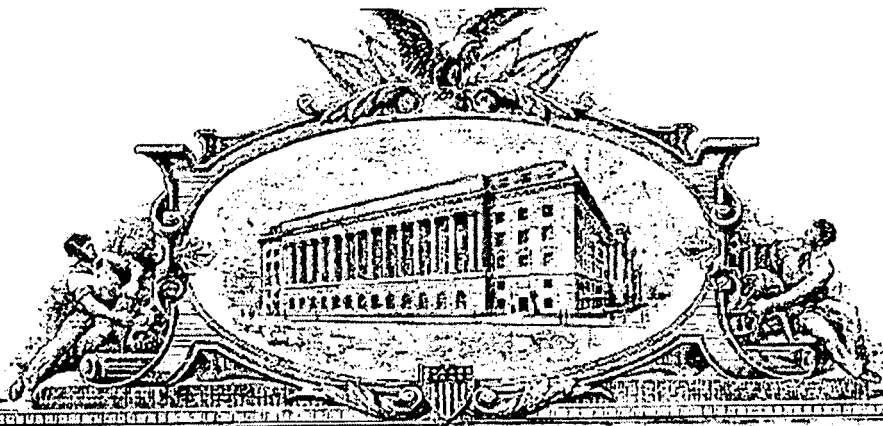
USPTO
Document

Date: 08/17/04
Disc 1 of 1

Requires PDF Reader

Certified
Patent Application 23 Filed
10865670

1209189



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

August 11, 2004

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: *10/865,670*
FILING DATE: *June 09, 2004*

Certified by

Jon W Dudas



Acting Under Secretary of Commerce
for Intellectual Property
and Acting Director of the U.S.
Patent and Trademark Office

16085 U.S. PTO

Practitioner's Docket No. 944-001.114-1

PATENT

22141 U.S. PTO
10/865670
060904

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P. § 601, 7th ed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Mail Stop Patent Application
Director of the U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s): Marta KARCZEWICZ, Selim S. BALCISOY, Tolga K. CAPIN

WARNING: 37 C.F.R. § 1.41(a)(1) points out:

"(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(l) is filed supplying or changing the name or names of the inventor or inventors."

For (title): PROGRESSIVE DOWNLOADING OF TIMED MULTIMEDIA CONTENT

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is mandatory)

(Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date June 9, 2004, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EV452363236US, addressed to: Mail Stop Patent Application, Director of the U.S. Patent & Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450.

Cathy Wilcox

(type or print name of person mailing paper)

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

WARNING: Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b). Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

1. Type of Application

This new application is for a(n)

(check one applicable item below)

- ☒ Original (nonprovisional)
☐ Design
☐ Plant

WARNING: *Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. § 37(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.*

WARNING: *Do not use this transmittal for the filing of a provisional application.*

NOTE: *If one of the following 3 items apply, then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED and a NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION.*

- ☐ Divisional
☐ Continuation
☐ Continuation-in-part (C-I-P)

2. Benefit of Prior U.S. Application(s) (35 U.S.C. §§ 119(e), 120, or 121)

NOTE: *A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. § 112. Each prior application must also be:*

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designated the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: *If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.*

WARNING: *If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. §§ 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. §§ 120, 121 or 365(c). (35 U.S.C. § 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. §§ 199, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.*

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WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application must be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☒ The new application being transmitted claims the benefit of prior U.S. application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed

A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

11 Pages of specification
5 Pages of claims
2 Sheets of drawings

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 C.F.R. § 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm (5/8 inch) down from the top of the page . . ." 37 C.F.R. § 1.84(c).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s). Three (3) sets of photographs and a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)" are attached. 37 C.F.R. § 1.84(b).
- ☐ The enclosed drawing(s) are in color. Three (3) sets of color drawings and a "PETITION TO ACCEPT COLOR DRAWING(S)" are attached. 37 C.F.R. §§ 1.84(a)(2) and 1.84(b).
- ☒ formal
- ☐ informal

B. Other Papers Enclosed

 Pages of declaration and power of attorney
1 Pages of abstract
1 Other (Title Page)

4. Additional papers enclosed

- ☐ Amendment to claims
 - ☐ Cancel in this application claims _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
 - ☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)
- ☐ Preliminary Amendment
- ☐ Information Disclosure Statement (37 C.F.R. § 1.98)
- ☐ Form PTO-1449 (PTO/SB/08A and 08B)
- ☐ Citations

- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath (including power of attorney)

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)-(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)-(4).

NOTE: "The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.62, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(l) is filed supplying or changing the name or names of the inventor or inventors." 37 C.F.R. § 1.41(a)(1).

- ☐ Enclosed

Executed by

(check all applicable boxes)

- ☐ inventor(s).
- ☐ legal representative of inventor(s). 37 C.F.R. §§ 1.42 or 1.43.
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.

- ☐ This is the petition required by 37 C.F.R. § 1.47 and the statement required by 37 C.F. R. § 1.47 is also attached. See item 13 below for fee.

- ☒ Not Enclosed

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

- ☐ Application is made by a person authorized under 37 C.F.R. § 1.41(c) on behalf of all the above named inventor(s).

(The declaration or oath, along with the surcharge required by 37 C.F.R. § 1.16(e) can be filed subsequently).

- ☐ Showing that the filing is authorized.
(not required unless called into question. 37 C.F.R. § 1.41(d))

6. Inventorship Statement

WARNING: If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

- ☐ The same.

or

- ☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,
☐ is submitted.
☐ will be submitted

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. An English translation of the non-English language application and the processing fee of \$130.00 required by 37 C.F.R. § 1.17(k) is required to be filed with the application, or within such time as may be set by the Office. 37 C.F.R. § 1.52(d).

- ☒ English
☐ Non English
☐ The attached translation includes a statement that the translation is accurate.
37 C.F.R. § 1.52(d).

8. Assignment

- ☒ An assignment of the invention to Nokia Corporation

☐ is attached. A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.
☒ will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters-one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 C.F.R. § 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

- ☐ This is a ☐ continuation ☐ divisional application and the assignment document for the parent application 0 / _____ was filed on _____.

Reel _____
Frame _____

9. Certified Copy

Certified copy(ies) of application(s)

Country	Appln. No.	Filed
Country	Appln. No.	Filed
Country	Appln. No.	Filed

from which priority is claimed

- ☐ is (are) attached.
- ☐ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 C.F.R. § 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. § 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 C.F.R. § 1.16)

A. ☒ Regular application

CLAIMS AS FILED				
Number filed		Number Extra	Rate	Basic Fee 37 C.F.R. § 1.16(a) \$770.00
Total Claims				
(37 C.F.R. § 1.16(c))	26-20 =	6	x \$18.00 =	\$108.00
Independent Claims				
(37 C.F.R. § 1.16(b))	6- 3 =	3	x \$86.00 =	\$258.00
Multiple dependent claim(s), if any (37 C.F.R. § 1.16(d))			+ \$280.00	

- ☐ Amendment canceling extra claims is enclosed.
- ☐ Amendment deleting multiple-dependencies is enclosed.
- ☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing, they must be paid or the claims canceled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 C.F.R. § 1.16(d).

Filing Fee Calculation \$ 1136.00

B. ☐ Design application
(\$330.00 – 37 C.F.R. § 1.16(f))

Filing Fee Calculation \$

C. ☐ Plant application
(\$510.00 - 37 C.F.R. § 1.16(g))

Filing Fee Calculation \$ _____

11. Small Entity Statement(s)

☐ Statement(s) that this is a filing by a small entity under 37 C.F.R. §§ 1.9 and 1.27 is no longer necessary.

WARNING: "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refiling of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d)), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 U.S.C. § 119(e), 120, 121, or 365(c) of a prior application, or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to the statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 C.F.R. § 1.28(a)(2).

WARNING: "Small entity status must not be established when the person or persons signing the . . . statement can unequivocally make the required self-certification." M.P.E.P., § 509.03, 6th ed., rev. 2, July 1996 (emphasis added).

(complete the following, if applicable)

☐ Status as a small entity was claimed in prior application
_____/_____, filed on _____, from which
benefit is being claimed for this application under:

- 35 U.S.C. § ☐ 119(e),
☐ 120,
☐ 121,
☐ 365(c),

and which status as a small entity is still proper and desired.

☐ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of A, B, or C above)
\$ _____

NOTE: Any excess of the full fee paid will be refunded if a small entity statement and a refund request are filed within 2 months of the date of timely payment of a full fee. The two-month period is not extendable under § 1.136. 37 C.F.R. § 1.28(a).

12. Request for International-Type Search (37 C.F.R. § 1.104(d))

(complete, if applicable)

☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

13. Fee Payment Being Made at This Time

- ☒ Not Enclosed
 - ☒ No filing fee is to be paid at this time.
(This and the surcharge required by 37 C.F.R. § 1.16(e) can be paid subsequently.)
- ☐ Enclosed
 - ☐ Filing fee \$ _____
 - ☐ Recording assignment (\$40.00 – 37 C.F.R. § 1.21(h))
(See attached "COVER SHEET FOR ASSIGNMENT ACCOMPANYING NEW APPLICATION.") \$ _____
 - ☐ Petition fee for filing by other than all the inventors or person on behalf of the inventor where inventor refused to sign or cannot be reached.
(\$130.00 – 37 C.F.R. §§ 1.47 and 1.17(i)) \$ _____
 - ☐ For processing an application with a specification in a non-English language
(\$130.00; 37 C.F.R. §§ 1.52(d) and 1.17(k)) \$ _____
 - ☐ Processing and retention fee
(\$130.00, 37 C.F.R. §§ 1.52(d) and 1.21(l)) \$ _____
 - ☐ Fee for international-type search report
(\$40.00; 37 C.F.R. § 1.21(e)) \$ _____

NOTE: 37 C.F.R. § 1.21(l) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 C.F.R. § 1.53(f) and this, as well as the changes to 37 C.F.R. §§ 1.53 and 1.78(a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of § 1.21(l) must be paid, within 1 year from the notification under § 53(f).

Total fees enclosed \$ _____

14. Method of Payment of Fees

- ☐ Attached is a ☐ check ☐ money order in the amount of \$ _____
- ☐ Authorization is hereby made to charge the amount of \$ _____
 - ☐ to Deposit Account No. _____
 - ☐ to Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING:: Credit card information should not be included on this form as it may become public.

- ☐ Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

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15. Authorization to Charge Additional Fees

WARNING: *If no fees are to be paid on filing, the following items should not be completed.*

WARNING: *Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.*

☐ The Office is hereby authorized to charge, in the manner shown above, the following additional fees that may be required by this paper and during the entire pendency of this application.

- ☐ 37 C.F.R. § 1.16(a), (f), or (g) (filing fees)
- ☐ 37 C.F.R. § 1.16(b), (c), and (d) (presentation of extra claims)

NOTE: *Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims canceled by amendment prior to the expiration of the time period set for response by the P.T.O. in any notice of fee deficiency (37 C.F.R. § 1.16(d)), it might be best not to authorize the P.T.O. to charge additional claim fees, except possibly when dealing with amendments after final action.*

- ☐ 37 C.F.R. § 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)
- ☐ 37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a))
- ☐ 37 C.F.R. § 1.17 (application processing fees)

WARNING: *"...A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).*

- ☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: *Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the Notice of Allowance. 37 C.F.R. § 1.311(b).*

NOTE: *37 C.F.R. § 1.28(b) requires "Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . issue fee." From the wording of 37 C.F.R. § 1.28(b), (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.*

16. Instructions as to Overpayment

NOTE: "...Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

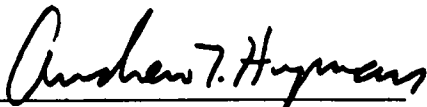
- ☐ Credit Account No. _____
- ☐ Refund

Date: 6-9-2004

Reg. No. 45,868

Tel. No. (203) 261-1234

Customer No. 004955


SIGNATURE OF PRACTITIONER

Andrew T. Hyman
(type or print name of practitioner)
Ware, Fressola, Van Der Sluys &
Adolphson LLP
755 Main Street
P.O. (Correspondence) Address
P.O. Box 224
Monroe, CT 06468

☒ **Incorporation by reference of added pages**

(check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.)

☒ **Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed**
Number of pages added 5

☐ **Plus Added Pages for Papers Referred to in Item 4 Above**
Number of pages added _____

☐ **Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application.**
Number of pages added _____

☐ **Plus "Assignment Cover Letter Accompanying New Application"**
Number of pages added _____

☐ **Statement Where No Further Pages Added**

(if no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item.

☐ **This transmittal ends with this page.**

Practitioner's Docket No. 944-001.114-1

PATENT

ADDED PAGES FOR APPLICATION TRANSMITTAL WHERE BENEFIT OF
PRIOR U.S APPLICATION(S) CLAIMED

NOTE: See 37 CFR 1.78.

17. Relate Back

WARNING: *If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. 120, 121 or 365(c). 35 U.S.C. 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. 119, 365(a) or 365(b). For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.*

(complete the following, if applicable)

☒ Amend the specification by inserting, before the first line, the following sentence:

A. 35 U.S.C. 119(e)

NOTE: *"Any nonprovisional application claiming the benefit of one or more prior filed copending provisional applications must contain or be amended to contain in the first sentence of the specification following the title a reference to each such prior provisional application, identifying it as a provisional application, and including the provisional application number (consisting of series code and serial number). "37 C.F.R. § 1.78(a)(4).*

☒ "This application claims the benefit of U.S. Provisional Application(s) No(s):

APPLICATION NO(S):

FILING DATE

60 / 484,507

July 1, 2003 "

95
B. 35 U.S.C. 120, 121 and 365(c)

NOTE: "Except for a continued prosecution application filed under § 1.53(d), any nonprovisional application claiming the benefit of one or more prior filed copending nonprovisional applications or international applications designating the United States of America must contain or be amended to contain in the first sentence of the specification following the title a reference to each such prior application, identifying it by application number (consisting of the series code and serial number) or international application number and international filing date and indicating the relationship of the applications . . . Cross-references to other related applications may be made when appropriate." (See § 1.14(a)). 37 C.F.R. § 1.78(a)(2).

- ☐ "This application is a
☐ continuation
☐ continuation-in-part
☐ divisional

of copending application(s)

- ☐ application number 0 / _____ filed on _____
☐ International Application _____ filed on _____
_____ and which designated the U.S."

NOTE: The proper reference to a prior filed PCT application that entered the U.S. national phase is the U.S. serial number and the filing date of the PCT application that designated the U.S.

NOTE: (1) Where the application being transmitted adds subject matter to the International Application, then the filing can be as a continuation-in-part or (2) if it is desired to do so for other reasons then the filing can be as a continuation.

NOTE: The deadline for entering the national phase in the U.S. for an international application was clarified in the Notice of April 28, 1987 (1079 O.G. 32 to 46) as follows:

"The Patent and Trademark Office considers the International application to be pending until the 22nd month from the priority date if the United States has been designated and no Demand for International Preliminary Examination has been filed prior to the expiration of the 19th month from the priority date and until the 32nd month from the priority date if a Demand for International Preliminary Examination which elected the United States of America has been filed prior to the expiration of the 19th month from the priority date, provided that a copy of the international application has been communicated to the Patent and Trademark Office within the 20 or 30 month period respectively. If a copy of the international application has not been communicated to the Patent and Trademark Office within the 20 or 30 month period respectively, the international application becomes abandoned as to the United States 20 or 30 months from the priority date respectively. These periods have been placed in the rules as paragraph (h) of § 1.494 and paragraph (i) of § 1.495. A continuing application under 35 U.S.C. 365(c) and 120 may be filed any time during the pendency of the international application."

- ☐ "The nonprovisional application designated above, namely application _____
/ _____, filed _____, claims the benefit of U.S.
Provisional Application(s) No(s):

APPLICATION NO(S):

FILING DATE

____ / _____
____ / _____
____ / _____

____ "
____ "
____ "

- ☐ Where more than one reference is made above, please combine all references into one sentence.

18. Relate Back – 35 U.S.C. 119 Priority Claim for Prior Application

The prior U.S. application(s), including any prior International Application designating the U.S., identified above in item 17B, in turn itself claim(s) foreign priority(ies) as follows:

Country	Appln. No.	Filed on
---------	------------	----------

The certified copy(ies) has (have)

- ☐ been filed on _____, in prior application 0 / _____, which was filed on _____.
- ☐ is (are) attached.

WARNING: The certified copy of the priority application that may have been communicated to the PTO by the International Bureau may not be relied on without any need to file a certified copy of the priority application in the continuation application. This is so because the certified copy of the priority application communicated by the International Bureau is placed in a folder and is not assigned a U.S. serial number unless the national stage is entered. Such folders are disposed of if the national stage is not entered. Therefore, such certified copies may not be available if needed later in the prosecution of a continuing application. An alternative would be to physically remove the priority documents from the folders and transfer them to the continuing application. The resources required to request transfer, retrieve the folders, make suitable record notations, transfer the certified copies, enter and make a record of such copies in the Continuing Application are substantial. Accordingly, the priority documents in folders of international applications that have not entered the national stage may not be relied on. Notice of April 28, 1987 (1079 O.G. 32 to 46).

19. Maintenance of Copendency of Prior Application

NOTE: The PTO finds it useful if a copy of the petition filed in the prior application extending the term for response is filed with the papers constituting the filing of the continuation application. Notice of November 5, 1985 (1060 O.G. 27).

- A. ☐ Extension of time in prior application

(This item **must** be completed and the papers filed in the prior application, if the period set in the prior application has run.)

- ☐ A petition, fee and response extends the term in the pending prior application until _____.
- ☐ A copy of the petition filed in prior application is attached.

- B. ☐ Conditional Petition for Extension of Time in Prior Application

(complete this item, if previous item not applicable)

- ☐ A conditional petition for extension of time is being filed in the pending prior application.
- ☐ A copy of the conditional petition filed in the prior application is attached.

20. Further Inventorship Statement Where Benefit of Prior Application(s) Claimed

(complete applicable item (a), (b) and/or (c) below)

(a) ☐ This application discloses and claims only subject matter disclosed in the prior application whose particulars are set out above and the inventor(s) in this application are

☐ the same.

☐ less than those named in the prior application. It is requested that the following inventor(s) identified for the prior application be deleted:

(type name(s) of inventor(s) to be deleted)

(b) ☐ This application discloses and claims additional disclosure by amendment and a new declaration or oath is being filed. With respect to the prior application, the inventor(s) in this application are

☐ the same.

☐ the following additional inventor(s) have been added:

(type name(s) of inventor(s) to be added)

(c) The inventorship for all the claims in this application are

☒ the same

☐ not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made

☐ is submitted.

☐ will be submitted.

21. **Abandonment of Prior Application (if applicable)**

- ☐ Please abandon the prior application at a time while the prior application is pending, or when the petition for extension of time or to revive in that application is granted, and when this application is granted a filing date, so as to make this application copending with said prior application.

NOTE: According to the Notice of May 13, 1983 (103, TMOG 6-7), the filing of a continuation or continuation-in-part application is a proper response with respect to a petition for extension of time or a petition to revive and should include the express abandonment of the prior application conditioned upon the granting of the petition and the granting of a filing date to the continuing application.

22. **Petition for Suspension of Prosecution for the Time Necessary to File an Amendment**

WARNING: "The claims of a new application may be finally rejected in the first Office action in those situations where (1) the new application is a continuing application of, or a substitute for, an earlier application, and (2) all the claims of the new application (a) are drawn to the same invention claimed in the earlier application, and (b) would have been properly finally rejected on the grounds of art of record in the next Office action if they had been entered in the earlier application." MPEP, § 706.07(b).

NOTE: Where it is possible that the claims on file will give rise to a first action final for this continuation application and for some reason an amendment cannot be filed promptly (e.g., experimental data is being gathered) it may be desirable to file a petition for suspension of prosecution for the time necessary.

(check the next item, if applicable)

- ☐ There is provided herewith a Petition To Suspend Prosecution for the Time Necessary to File An Amendment (New Application Filed Concurrently)

23. **Small Entity (37 CFR § 1.28(a))**

- ☐ Applicant has established small entity status by the filing of a statement in parent application 0 / _____ on _____.
- ☐ A copy of the statement previously filed is included.

WARNING: See 37 CFR § 1.28(a).

24. **NOTIFICATION IN PARENT APPLICATION OF THIS FILING**

- ☐ A notification of the filing of this (check one of the following)

- ☐ continuation
- ☐ continuation-in-part
- ☐ divisional

is being filed in the parent application, from which this application claims priority under 35 U.S.C. § 120.

19
PATENT
Attorney Docket No. 944-001.114-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

of

Marta KARCZEWICZ,

Selim S. BALCISOY,

and

Tolga K. CAPIN

for

**PROGRESSIVE DOWNLOADING OF TIMED
MULTIMEDIA CONTENT**

Express Mail No. EV452363236US

PROGRESSIVE DOWNLOADING OF TIMED MULTIMEDIA CONTENT

This application is based on and claims priority to a pending U.S. provisional application Serial No. 60/484,507, filed July 1, 2003.

5

Field of the Invention

The present invention relates generally to downloading of files and, more specifically, to start-up delay in progressive downloading.

10 Background of the Invention

In progressive downloading of multimedia content, the client usually buffers some data for a certain time so that decoding of the content can be carried out properly and in a timely manner. If the client starts playing the content too early, some parts of the content may still be downloaded when they should already be played. On the other hand, if the
15 client starts playing the content very late or the start-up delay is very long, the client needs an unnecessarily large buffer to store the already downloaded files. It is desirable to minimize the start-up delay so that the client can begin playing the content before the downloading of the entire file is finalized.

Let us use files that contain the Scalable Vector Graphics (SVG) as an example.
20 SVG is a language for describing two-dimensional graphics in XML (eXtensible Markup Language), which allows for three types of graphic objects: vector graphic shapes, images and text (see Scalable Vector Graphics 1.1 Specification, W3C Recommendation, 14 January 2003). Graphic objects can be grouped, transformed and composed from previously rendered objects. SVG drawings can be interactive and dynamic and can also
25 be used in animation. SVG content can be arranged in groups such that each of them can be processed and displayed independently from the following groups (groups delivered later in time). Groups are referred to hereafter as scenes. To each scene we can assign a *content presentation time* (or *content start time*) inferred from the content at which its presentation should start with relation to other scenes.

30 When the client downloads an SVG file stored on a server, the file is received at a given bit rate depending on the bandwidth available between the client and the server and is stored in the client's buffer. When the desired *start-up delay* is reached, the client

starts displaying the content of the file. Start-up delay is the difference between the beginning of the file download and the start of the file's content presentation.

It has been realized that while it is desirable to minimize the start-up delay such that the client can begin playing the content before the downloading of the entire file is
5 finalized, the start-up delay has to be sufficient to ensure that each scene is received before its player presentation time.

Currently, the start-up delay for use in conjunction with vector graphics is estimated based on the size of the file and its duration (playing time) that can be inferred from information, such as file length, frame rate and frame count given at the beginning
10 of the file. However, in many instances, the client cannot estimate accurately the start-up delay for content such as SVG based only on this information.

Thus, it is advantageous and desirable to provide a method and a mechanism to allow the client to estimate the start-up delay correctly in order to minimize the memory usage. Furthermore, it is advantageous that the client knows which parts of the file can be
15 discarded after presenting them so as to further minimize the memory usage.

Summary of the Invention

The present invention provides a method for progressive downloading of timed content, wherein a table that specifies the properties for the scenes in the content is
20 provided by the server so as to allow the client to compute the appropriate start-up delay. The table may list the size, start time and minimum transmission rate for each scene. Additionally, the end time for each scene may be given in order to save memory.

Thus, according to the first aspect of the present invention, there is provided a method of signaling in a network, the network having a least a client, and a server for
25 transmitting to the client data having a plurality of components, the components having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size. The method comprises:

conveying to the client information indicative of the content properties of the
30 components; and

determining in the client, responsive to the information, a start-up delay in the presentation based on the content properties of the components.

The information may be indicative of the content presentation times of the components and further indicative of content end times of the components.

5 The method further comprises the step of presenting the components at player start times of the components based on the start-up delay and the content presentation times of the components.

The information may be further indicative of content end times of the components, and the method further comprises the step of removing a portion of the data after presenting said portion of the data based on the content start times and the content end times of the components.

10 The information may be indicative of the component sizes.

The information is conveyed to the client prior to the downloading of the data.

The information may be indicative of minimum bandwidths for the components based on the transmission rate.

15 The content properties comprise content presentation times of the components and content end times of the components, and the method further comprises: presenting the components at player start times of the components based on the component size and the content presentation times of the components; and removing one or more components after presenting said one or more components based on the content presentation times and the content end time of said one or more components while presenting other components in the data.

20 According to the second aspect of the present invention, there is provided a multimedia system, which comprises:

at least a client having a data buffer, and

25 at least a server for transmitting to the client data having a plurality of components, the components having various content properties so as to allow the client to download the data in the data buffer before presenting at least a part of the data, each component has a component size,

the server comprising:

30 means for determining the content presentation times of the components based on the component sizes and the content properties of the components; and

means for conveying to the client information indicative of the presentation times of the components, and

the client comprising:

means for receiving the conveyed information; and
means for determining a start-up delay in the presentation based on the received information.

The client further comprises

5 means for presenting the data according to player start times of the components based on the start-up delay and the content presentation times of the components.

The conveyed information is further indicative of content end times of the components and the client is adapted to

removing one or more components after presenting said one or more components
10 based on the content presentation times of the components and the content end times of the components.

The information may be indicative of minimum bandwidths in transmitting the components based on the transmission rate, and the client is adapted to removing one or more components after presenting said one or more components based on the content
15 presentation times and the minimum bandwidths of the components.

According to the third aspect of the present invention, there is provided a server in a multimedia network, the network having at least a client, the server is adapted to transmit to the client data having a plurality of components, the components having various content properties, so as to allow the client to download the data in a client buffer
20 before presenting at least a part of the data, each component having a component size.
The server comprises:

means for determining the content presentation times of the components based on the component sizes and the content properties of the files; and

means for conveying to the client information indicative of the presentation times
25 so as to allow the client to determine a start up delay in the presentation based on the information.

According to the fourth aspect of the present invention, there is provided a client in the multimedia network, the network having at least a server for transmitting to the client data having a plurality of components, the components having various content
30 properties so as to allow the client to download the data before presenting at least a part of the data, each component having a component size, wherein the server further transmits to the client information indicative of the content properties of the components.
The client comprises:

a buffer for storing at least part of the data; and
means, responsive to the information, for determining a start up delay in the presentation based on the content properties of the components.

According to the fifth aspect of the present invention, there is provided a computer
5 program for use in a server in a network, the network having at least a client, wherein the server is adapted to transmit to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size. The computer program comprises:
a first code to determine the presentation times based on the component size and
10 the content properties of the files; and
a second code to generate information indicative of the presentation times, so as to allow the client to determine a start up delay in the presentation.

According to the sixth aspect of the present invention, there is provided a
computer program for use in a client in a network, the network having at least a server for
15 transmitting to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, wherein the server is adapted to transmit to the client information indicative of the content properties. The computer program comprises:
a code to determine a start up delay in the presentation; and
20 a code to determine player start times of the components based on the content properties and the start-up delay in the presentation.

The present invention will become apparent upon reading the description taken in conjunction with Figures 1 and 2.

25 Brief Description of the Drawing

Figure 1 is a block diagram illustrating a network system having a server and a client, wherein the client has a software program for determining the start-up delay, according to the present invention.

Figure 2 is a flowchart illustrating the method for determining the start-up delay at
30 a client, according to the present invention.

Detailed description of the Invention

Figure 1 shows a network system 1 having a multimedia server 10 and a multimedia client 50. The server 10 is used to send encoded data to the client 50 through a network 30 so that the client 50 can decode the data for playing on a playing device 70.

5 The server 10 has data storage 22 for storing files to be transmitted to the client 50 via a transmitter 28. The server 10 also has a software program 24 having executable codes for generating a table 26 listing the properties of the scenes in the files, so as to allow the client 50 to estimate the start-up delay. For example, the software program 24 includes a scene property algorithm 25 for carrying out said listing.

10 The client 50 has a data buffer 60 for storing the files downloaded via a receiver 68 from the server 10 for a certain time so that the content of the downloaded files can be decoded by the decoder 66 and played on the playing device 70 properly. In order to minimize the memory usage, the client 50 has a software program 62 having executable codes for computing the appropriate start up delay and player start time. For example, the
15 software program 62 includes an algorithm 64 for computing the start up delay time. The computer program 62 also comprises other executable codes for computing the player start time and for determining when to remove one or more components in the data buffer 60 after the components have be presented.

Let us consider the following example. The size of the SVG file is equal to 175
20 kbits and its duration is 9 sec. The file contains an animation presentation comprising 7 scenes as listed in Table I. Table I lists the size after compression and the content start time for each scene. It should be noted that the presentation of scene 4 starts at the same time as scene 5. This means that the file for scene 4 may include only the definition of elements used in the three following scenes: scenes 5, 6 and 7. In that respect, the
25 properties of one or more scenes in the content may be different from the other scenes. Due to the difference in properties, the files may not be presented in a sequential manner in reference to the order in which the files are downloaded.

In assigning the content presentation times, it is initially assumed that start-up delay is equal to 0. Client then calculates the values of the start-up delay and the *player start time (player presentation time)* by offsetting the content start time for each scene by
30 the start-up delay. For example, if the start-up delay is equal to 2 sec, the player start time for the scene 1 is equal to 2 sec instead of 0 as listed in the table.

Scene number	Compressed size [kbits]	Content start time [s]
1	20	0
2	20	1
3	20	2
4	100	3
5	5	3
6	5	5
7	5	7

TABLE I

In order to minimize the start-up delay, the client can begin playing the content before downloading the entire file is finalized. However, the start-up delay has to be sufficient to ensure that each scene is received before its player presentation time. For example, let us assume the available bandwidth is equal to 20 kbits/sec when the file as described in Table I is downloaded. If the client decides to start playing the content after receiving the first scene (scene 1), the start-up delay is equal to 1 sec. Accordingly, the player start time for scene 5 is equal to 4 sec when taking into account the start-up delay of 1 sec. With the available bandwidth of 20 kbits/sec, the file for scene 5 will be completely downloaded after 8.25 sec (165 [kbits] / 20 [kbits/sec]), or 4.25 sec after it should be presented at $t=4$ sec. Obviously, it is impossible to present a scene before it is downloaded. Thus, it is necessary for the client to start play the content at a later time.

To demonstrate that it is not sufficient to rely only on the knowledge of the total file size and its duration for estimating the start-up delay correctly, let us again refer to the file as describe in Table I and assume the available bandwidth of 20 kbits/sec. As mentioned earlier, the size of the entire SVG file is 175 kbits and its duration is 9 sec. It requires 8.75 sec (175 [kbits] / 20 [kbits/sec]) for the file to be fully received. Thus, the required time to receive is less than the duration. However, if the client decides to start presentation of the file content immediately after receiving the first scene, based on his knowledge of the total file size and its duration, scene 5 will not be received in time, as demonstrated earlier.

According to the present invention, the table 26 lists the size and content presentation time of some or all scenes, as shown in Table II. The client 50 will receive the scene properties prior to receiving the actual content of the scenes (data).

Size (Scene 1)
Content Presentation Time (Scene 1)
Size (Scene 2)
Content Presentation Time (Scene 2)
...
Size (Scene n)
Content Presentation Time (Scene n)
Data (Scene 1)
Data (Scene 2)
...
Data (Scene n)

5

TABLE II

Alternatively, the scene information as listed in table 26 includes minimum bandwidth B_m (minimum rate) in transmission to ensure that each remaining scene will be available before its player presentation time – in case the client decides to start the presentation of the entire file after the reception of this scene. If the estimated bandwidth is equal to B , the client can start playing the content of the file after receiving the scene for which the minimum rate value B_m is larger than B . Minimum rates for all the scenes do not have to be included at the beginning of the file. It is sufficient if the minimum rate for each scene is received together with that scene. The structure of the file is in this case is as follows:

Minimum Rate (Scene 1)
Minimum Rate (Scene 2)
...
Minimum Rate (Scene n)

Data (Scene 1)
Data (Scene 2)
...
Data (Scene n)

TABLE III

For the file as described in Table I, the minimum rates rounded up to the nearest
5 kbits/sec are as follows:

Scene 1:	49
Scene 2:	42
Scene 3:	35
10 Scene 4:	3
Scene 5:	2
Scene 6:	1

Accordingly, if the estimated bandwidth is equal to 20 kbits/sec the client can start
15 the presentation of the file after receiving scene 4, to which the assigned value of
minimum rate in transmission is equal to 3 kbits/sec.

In order to compute the minimum rate for each scene, the software program 24
may have the following pseudo code:

```
20     scene_size={20, 20, 20, 100, 5, 5, 5};  
      content_start_time={0, 1, 2, 3, 3, 5, 7};  
      number_of_scenes=7;  
  
      for (i=1; i<number_of_scenes; i++){  
25        cumulative_size[i-1]=0;  
         for (j=i; j<number of scenes; j++){  
             cumulative_size[j]=cumulative_size[j-  
             _1]+scene_size[j];  
         }  
      }
```

```
minimum_rate[i-1]=0;
for (j=i; j< number_of_scenes; j++){
    rate=cumulative_size[j]/content_start_time[j];
    _if (rate>minimum_rate[i-1]){
5        minimum_rate[i-1]=rate;
    }
}
}
```

10

It should be noted that not all the scenes in the SVG file will have their end times explicitly specified. For example, the file scene 4 as described in Table I can simply be a definition of elements used in following scenes. Thus, in order to provide a hint to the client as to how long each scene should be kept in the memory, the *content end time* for each scene may also be signaled to the client 50. Using the scene examples from Table I, the content start time and the content end time are listed in Table IV. As can be seen in Table IV, all the scenes with the exception of scene 4 can be discarded immediately after they are presented.

15

Scene number	Content start time [s]	Content end time [s]
1	0	1
2	1	2
3	2	3
4	3	9
5	3	5
6	5	7
7	7	9

20

TABLE IV

Alternatively we can specify that a given scene should be kept until the arrival and display of scene number m. For example, scene 1 has to be kept until the end of its own

presentation, i.e., $m=1$. Scene 4 has to be kept until the end of the presentation of scene 7, i.e., $m=7$. Each of the other scenes has also to be kept until the end of its own presentation.

In sum, the signal method for use in the client to determine the start-up delay can be

5 based on the sizes and the content presentation times of the data components or the minimum rate in transmission of the data components. As shown in the flowchart 100, the client obtains available bitrate or bandwidth at step 110. At step 120, it is determined whether the information received from the server contains the size of the data components or the minimum bandwidth. If the information is indicative of the size of the data
10 components, the client computes cumulative sizes for components at step 130 and divides the cumulative sizes, at step 132, by the available bitrate as obtained step 110 in order to obtain the “cumulative play times”. The client subtracts the content start time, at step 134, from the cumulative play times for determining the start-up delay at step 150.

Alternatively, if the minimum bandwidths for the data components are available from the
15 information conveyed by the server, the client finds first component where minimum rate for component is greater than the average rate, at step 140, in order to determine the start-up delay at step 150.

Furthermore, when the content end time for each scene is provided to the client, the client can further minimize the memory usage by selectively discarding the scenes in the SVG

20 files based on the provided information.

Although the invention has been described with respect to a preferred embodiment thereof, it will be understood by those skilled in the art that the foregoing and various other changes, omissions and deviations in the form and detail thereof may be made without departing from the scope of this invention.

What is claimed is:

1. A method of signaling in a network, the network having a least a client, and a server for transmitting to the client data having a plurality of components, the components
5 having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, said method comprising:
conveying to the client information indicative of the content properties of the components; and
10 determining in the client, responsive to the information, a start-up delay in the presentation based on the content properties of the components.
2. The method of claim 1, wherein the information is indicative of the content presentation times of the components.
- 15 3. The method of claim 1, wherein the information is indicative of the component sizes.
4. The method of claim 1, wherein the information is conveyed to the client prior to
20 the downloading of the data.
5. The method of claim 2, wherein the information is further indicative of content end times of the components.
- 25 6. The method of claim 2, further comprising:
presenting the components at player start times of the components based on the start-up delay and the content presentation times of the components.
7. The method of claim 6, wherein the information is further indicative of content
30 end times of the components, said method further comprising:
removing a portion of the data after presenting said portion of the data based on the content start times and the content end times of the components.

8. The method of claim 1, wherein the data is transmitted at a transmission rate in the network, and the information is indicative of the transmission rate.
9. The method of claim 1, wherein the data is transmitted at a transmission rate in the network, and the information is indicative of minimum bandwidths for the components based on the transmission rate.
10. The method of claim 1, wherein the content properties comprise content presentation times of the components and content end times of the components, said method further comprising:
- presenting the components at player start times of the components based on the component size and the content presentation times of the components; and
 - removing one or more components after presenting said one or more components based on the content presentation times and the content end time of said one or more components while presenting other components in the data.
11. A multimedia system comprising:
- at least a client having a data buffer, and
 - at least a server for transmitting to the client data having a plurality of components, the components having various content properties so as to allow the client to download the data in the data buffer before presenting at least a part of the data, each component has a component size, wherein
- the server comprises:
 - means for determining the content presentation times of the components based on the content properties of the components; and
 - means for conveying to the client information indicative of the presentation times of the components and
 - the client comprises:
 - means for receiving the conveyed information; and
 - means for determining a start-up delay in the presentation based on the received information.

12. The system of claim 11, wherein the means for determining the content presentation times is also for determining the component sizes, and wherein the means for conveying to the client information indicative of the presentation times is also for conveying to the client information indicative of the component sizes.
13. The system of claim 11, wherein the client further comprises: means for presenting the data according to player start times of the components based on the start-up delay and the content presentation times of the components.
14. The system of claim 13, wherein the conveyed information is further indicative of content end times of the components and the client is adapted to removing one or more components after presenting said one or more components based on the content presentation times of the components and the content end times of the components.
15. The system of claim 11, wherein the information is conveyed to the client prior to the downloading of the data.
16. The system of claim 11, wherein the data are transmitted at a transmission rate and the information is indicative of minimum bandwidths in transmitting the components based on the transmission rate.
17. The system of claim 16, wherein the client is adapted to removing one or more components after presenting said one or more components based on the content presentation times and the minimum bandwidths of the components.
18. A server in a multimedia network, the network having at least a client, the server is adapted to transmit to the client data having a plurality of components, the components having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, said server comprising:

means for determining the content presentation times of the components based on the content properties of the files; and

means for conveying to the client information indicative of the presentation times so as to allow the client to determine a start up delay in the presentation based on the information.

19. The server of claim 18, wherein the means for determining the content presentation times is also for determining the component sizes, and

wherein the means for conveying to the client information indicative of the presentation times is also for conveying to the client information indicative of the component sizes.

20. The server of claim 18, wherein the information is conveyed to the client prior to transmitting of data to the client.

21. The server of claim 18, wherein the data are transmitted at a transmission rate, and the information is indicative of minimum bandwidths in transmitting the components based on the transmission rate.

22. A client in the multimedia network, the network having at least a server for transmitting to the client data having a plurality of components, the components having various content properties so as to allow the client to download the data before presenting at least a part of the data, each component having a component size, wherein the server further transmits to the client information indicative of the content properties of the components, said client comprising:

a buffer for storing at least part of the data; and

means, responsive to the information, for determining a start up delay in the presentation based on the content properties of the components.

23. The client of claim 22, wherein the information is indicative of the content presentation times and sizes of the components, said client further comprising:

means for presenting the data according to player start times of the components based on the start-up delay and the content presentation times of the components.

24. The client of claim 23, wherein the information is further indicative of content end times of the components, and the client removes one or more components after presenting said one or more components based on the content presentation times and the content end times of the components.

25. A computer program for use in a server in a network, the network having at least a client, wherein the server is adapted to transmit to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, said computer program comprising:

- a first code to determine the presentation times and sizes based on the content properties of the files; and
- a second code to generate information indicative of the presentation times and sizes, so as to allow the client to determine a start up delay in the presentation.

26. A computer program for use in a client in a network, the network having at least a server for transmitting to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, wherein the server is adapted to transmit to the client information indicative of the content properties, said computer program comprising:

- a code to determine a start up delay in the presentation; and
- a code to determine player start times of the components based on the content properties and the start-up delay in the presentation.

Abstract of the Disclosure

In progressive downloading of multimedia content, such as SVG files, the client buffers some data for a certain time so the content can be decoded and presented in a timely manner. In order for the client to start presenting the content of a file at an appropriate time, the client has to estimate the start-up delay time correctly. The server, prior to or at the time of sending the data, provides the client information indicative of content properties, such as the size and content presentation time of some or all scenes. The information may include transmission minimum bandwidth to ensure each remaining scene will be available before its presentation time. The client estimates the start-up delay time based on the provided information. Furthermore, the client can determine when to remove one or more files from its data buffer in order to minimize the memory usage.

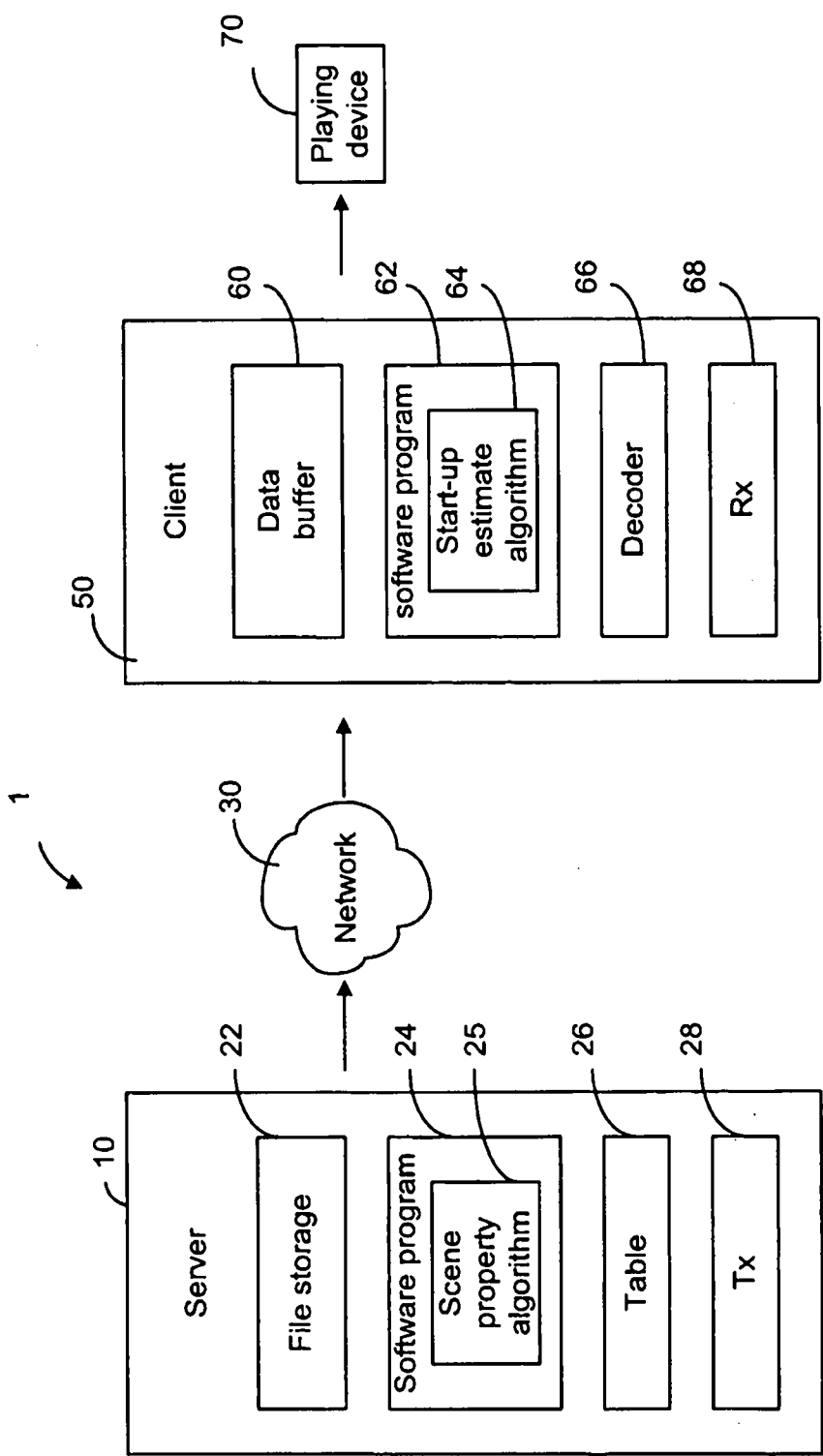


FIG. 1

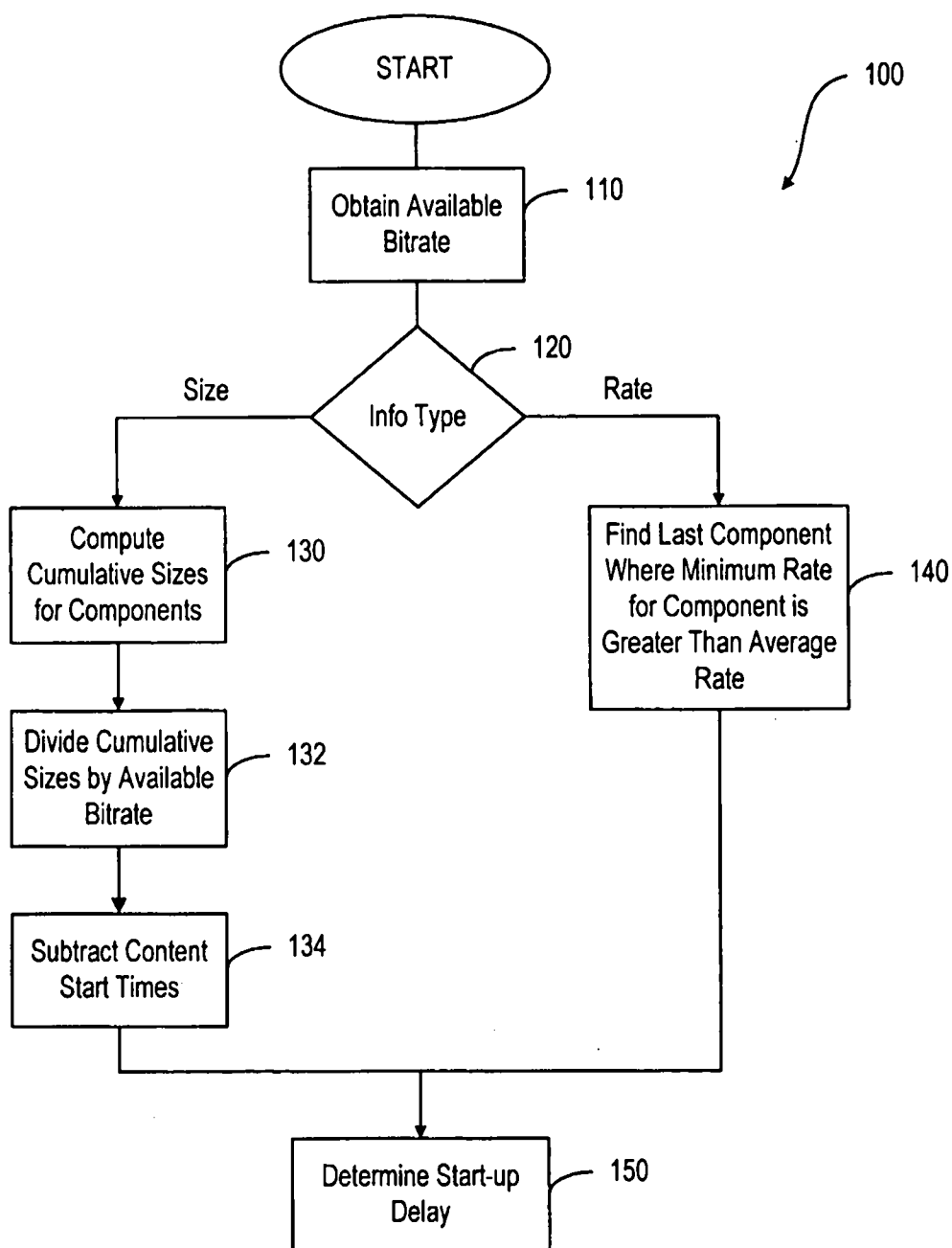


FIG. 2

ESTADOS UNIDOS DE AMÉRICA

A TODOS A QUIENES LOS PRESENTES LLEGAREN:

DEPARTAMENTO DE COMERCIO DE ESTADOS UNIDOS

Oficina de Marcas y Patentes de Estados Unidos

11 de agosto de 2004

POR EL PRESENTE SE CERTIFICA QUE LA ADJUNTA ES UNA COPIA FIEL DE LOS DOCUMENTOS QUE OBRAN EN LOS REGISTROS DE LA OFICINA DE MARCAS Y PATENTES REFERENTES A LA SOLICITUD DE PATENTE QUE SE IDENTIFICA A CONTINUACIÓN Y QUE CUMPLIÓ CON LOS REQUISITOS NECESARIOS PARA QUE SE LE OTORGARA UNA FECHA DE PRESENTACIÓN BAJO EL 35 USC 111.

SOLICITUD NUMERO: 10/865,670

FECHA DE PRESENTACIÓN: 9 de junio de 2004

Certificada por

Jon W Dudas

Actuando como Secretario de Comercio para Propiedad Intelectual y Director Encargado de La Oficina de Marcas y patentes de Estados Unidos de América

(Sello de oblea) Oficina de marcas y Patentes, Estados Unidos de América.

REIVINDICACIONES

Lo que se reivindica es:

1. Un método para señalar en una red, la red tiene por lo menos un cliente, y un servidor para transmitir al cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido, de modo que se permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, dicho método comprende:

Transportar al cliente la información indicativa de las propiedades del contenido de los componentes; y

Determinar en el cliente, en respuesta a la información, un retardo de inicio en la presentación con base en las propiedades del contenido de los componentes.

2. El método de acuerdo con la reivindicación 1, en donde la información es indicativa de los tiempos de presentación del contenido de los componentes.
3. El método de acuerdo con la reivindicación 1 en donde la información es indicativa de los tamaños del componente.

4. El método de acuerdo con la reivindicación 1, en donde la información es transportada al cliente antes de la descarga de los datos.
5. El método de acuerdo con la reivindicación 2, en donde la información es indicativa adicionalmente de los tiempos finales del contenido de los componentes.
6. El método de acuerdo con la reivindicación 2, que adicionalmente comprende:

Presentar los componentes en los tiempos de inicio de jugador de los componentes con base en el retardo de inicio y los tiempos de presentación del contenido de los componentes.

7. El método de acuerdo con la reivindicación 6, en donde la información es indicativa adicionalmente de los tiempos finales del contenido de los componentes, dicho método adicionalmente comprende:

Remover una porción de los datos después de presentar dicha porción de los datos con base en los tiempos de inicio del contenido y los tiempos finales del contenido de los componentes.

8. El método de acuerdo con la reivindicación 1, en donde los datos son transmitidos a una velocidad de

transmisión en la red, y en que la información es indicativa de la velocidad de transmisión.

9. El método de acuerdo con la reivindicación 1, en donde los datos son transmitidos a una velocidad de transmisión en la red, y que la información es indicativa de los anchos de banda mínimos para los componentes con base en la velocidad de transmisión.
10. El método de acuerdo con la reivindicación 1, en donde las propiedades del contenido comprenden tiempos de presentación del contenido de los componentes y tiempos finales de los contenidos de los componentes, dicho método adicionalmente comprende:

Presentar los componentes en los tiempos de inicio del jugador de los componentes con base en el tamaño del componente y los tiempos de presentación del contenido de los componentes; y

Remover uno o más componentes después de presentar dichos uno o más componentes con base en los tiempos de presentación del contenido y los tiempos finales del contenido de dichos uno o más componentes mientras se presenta otros componentes en los datos.

11. Un sistema de multimedios que comprende:

Por lo menos un cliente que tiene una memoria de datos, y

Por lo menos un servidor para transmitir al cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido de modo que se permite al cliente descargar los datos en la memoria de datos antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, en donde

el servidor comprende:

Medios para determinar los tiempos de presentación del contenido de los componentes con base en los tamaños de componente y las propiedades del contenido de los componentes; y

Medios para transportar al cliente la información indicativa de los tiempos de presentación de los componentes; y

El cliente comprende:

Medios para recibir la información transportada; y

Medios para determinar un retardo de inicio en la presentación con base en la información recibida.

12. El sistema de acuerdo con la reivindicación 11, en donde los medios para determinar los tiempos de presentación del contenido son también para determinar los tamaños del componente, y

en donde los medios para transportar al cliente la información indicativa de los tiempos de presentación son también para transportar al cliente la información indicativa de los tamaños del componente.

13. El sistema de acuerdo con la reivindicación 11, en donde el cliente comprende adicionalmente:

Medios para presentar los datos de acuerdo con los tiempos de inicio de jugador de los componentes con base en el retardo de inicio y los tiempos de presentación del contenido de los componentes.

14. El sistema de acuerdo con la reivindicación 13, en donde la información transportada es indicativa adicionalmente de los tiempos finales del contenido de los componentes y que el cliente está adaptado para

remover uno o más componentes después de presentar dichos uno o más componentes con base en los tiempos de presentación del contenido de los componentes y los tiempos finales del contenido de los componentes.

15. El sistema de acuerdo con la reivindicación 11, en donde la información es transportada al cliente antes de la descarga de los datos.
16. El sistema de acuerdo con la reivindicación 11, en donde los datos son transmitidos a una velocidad de transmisión y la información es indicativa de los anchos de banda mínimos en la transmisión de los componentes con base en la velocidad de transmisión.
17. El sistema de acuerdo con la reivindicación 16, en donde el cliente está adaptado para remover uno o más componentes después de presentar dichos uno o más componentes con base en los tiempos de presentación del contenido y los anchos de banda mínimos de los componentes.
18. Un dispositivo servidor en una red multimedia, la red tiene por lo menos un cliente, el dispositivo servidor está adaptado para transmitir al cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido, de modo que se le permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, dicho dispositivo servidor comprende:

Medios para determinar los tiempos de presentación de contenido de los componentes con base en los tamaños del componente y las propiedades del contenido de los archivos; y

Medios para transportar al cliente información indicativa de los tiempos de presentación de modo que se le permite al cliente determinar un retardo de inicio en la presentación con base en la información.

19. El dispositivo servidor de acuerdo con la reivindicación 18, en donde los medios para determinar los tiempos de presentación de contenido son también para determinar el tamaño de los componentes, y

en donde los medios para transportar al cliente información indicativa de los tiempos de presentación son también para transportar al cliente información indicativa de los tamaños de componente.

20. El dispositivo servidor de acuerdo con la reivindicaciones 18, en donde la información es transportada al cliente antes de transmitir los datos al cliente.

21. El dispositivo servidor de acuerdo con la reivindicación 18, en donde los datos son transmitidos a una velocidad de transmisión, y la información es

indicativa de los anchos de banda mínimos en la transmisión de los componentes con base en la velocidad de transmisión.

22. Un dispositivo de cliente en la red de multimedia, la red tiene por lo menos un servidor para transmitir al dispositivo de cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido de modo que se permite al dispositivo de cliente descargar los datos antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, en donde el servidor transmite adicionalmente al dispositivo de cliente información indicativa de las propiedades de contenido de los componentes, dicho dispositivo de cliente comprende:

Una memoria para almacenar por lo menos parte de los datos;
y

Medios, en respuesta a la información, para determinar un retardo de inicio en la presentación con base en las propiedades del contenido de los componentes.

23. El dispositivo de cliente de acuerdo con la reivindicación 22, en donde la información es indicativa de los tiempos de presentación del contenido

de los componentes, dicho dispositivo de cliente adicionalmente comprende:

Medios para presentar los datos de acuerdo con tiempos de inicio de jugador de los componentes con base en el retardo de inicio y los tiempos de presentación del contenido de los componentes.

24. El dispositivo de cliente de la reivindicación 23, en donde la información es indicativa adicionalmente de los tiempos finales del contenido de los componentes, y el dispositivo del cliente remueve uno o más componentes después de presentar dichos uno o más componentes con base en los tiempos de presentación del contenido y los tiempos finales del contenido de los componentes.

25. Un programa de computador para uso en un servidor en una red, la red tiene por lo menos un cliente, en donde el servidor está adaptado para transmitir al cliente datos que tienen varias propiedades de contenido, de modo que se le permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, dicho programa de computador comprende:

Un primer código para determinar los tiempos de presentación con base en el tamaño de componentes y las propiedades del contenido de los archivos; y

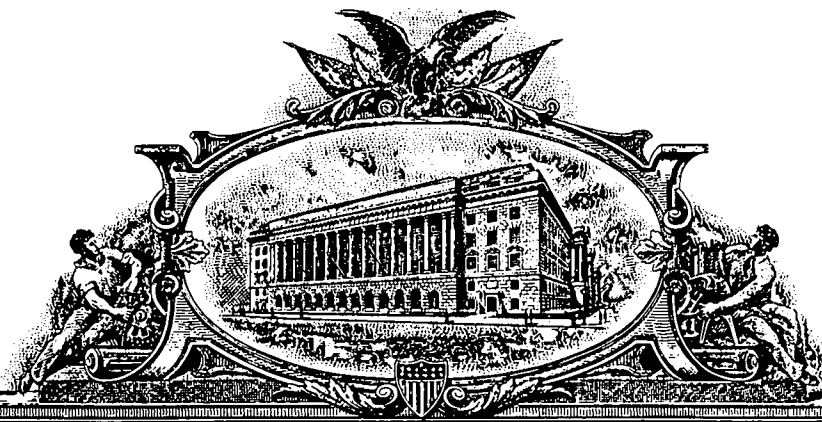
Un segundo código para generar información indicativa de los tiempos de presentación, de modo que se le permite al cliente determinar un retardo de inicio en la presentación.

26. Un programa de computador para uso en un cliente en una red, la red tiene por lo menos un servidor para transmitir al cliente datos que tienen varias propiedades de contenido, de modo que se le permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, en donde el servidor está adaptado para transmitir al cliente información indicativa de las propiedades de contenido, dicho programa de computador comprende:

Un código para determinar un retardo de inicio en la presentación; y

Un código para determinar tiempos de inicio de jugador de los componentes con base en las propiedades de contenido y el retardo de inicio en la presentación.

PA 1190828



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

July 07, 2004

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: 60/484,507

FILING DATE: July 01, 2003



**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**

P. SWAIN

Certifying Officer

131

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

07/08/2003 SZWDIE1 00000060 60484507

01 FC:1005

160.00 0P

PTO-1556
(5/87)

*U.S. Government Printing Office: 2001 — 481-697/59173

132

17537 U.S. PTO
60/189507

Practitioner's Docket No. 944-001.114

PATENT

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P. § 601, 7th ed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Selim S. BALCISOY, Marta KARCZEWICZ, and Tolga K. CAPIN

For: PROGRESSIVE DOWNLOADING OF TIMED MULTIMEDIA CONTENT

Mail Stop Provisional Patent Application

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

COVER SHEET FOR FILING PROVISIONAL APPLICATION (37 C.F.R. § 1.51(c)(1))

WARNING: "A provisional application must also include the cover sheet required by § 1.51(c)(1) or a cover letter identifying the application as a provisional application. Otherwise, the application will be treated as an application filed under paragraph (b) [nonprovisional application] of this section." 37 C.F.R. § 1.53(c)(1). See also M.P.E.P. § 201.04(b), 6th ed., rev. 3.

NOTE: "A complete provisional application does not require claims since no examination on the merits will be given to a provisional application. However, provisional applications may be filed with one or more claims as part of the application. Nevertheless, no additional claim fee or multiple dependent claims fee will be required in a provisional application." Notice of December 5, 1994, 59 Fed. Reg. 63,951, at 63,953.

"Any claim filed with a provisional application will, of course, be considered part of the original provisional application disclosure." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.

NOTE: "A provisional application is not entitled to the right of priority under 35 U.S.C. 119 or 365(a) or § 1.55, or to the benefit of an earlier filing date under 35 U.S.C. 120, 121 or 365(c) or § 1.78 of any other application. No claim for priority under § 1.78(a)(3) may be made in a design application based on a provisional application. No request under § 1.293 for a statutory invention registration may be filed in a provisional application. The requirements of §§ 1.821 through 1.825 regarding application disclosures containing nucleotide and/or amino acid sequences are not mandatory for provisional applications." 37 C.F.R. § 1.53(c)(3).

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is mandatory) (Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date July 1, 2003, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EV 252879523 US, addressed to the: Mail Stop Provisional Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Cathy Wilcox

(type or print name of person mailing paper)


Signature of person mailing paper

(Cover Sheet for Filing Provisional Application [23-1] page 1 of 4)

NOTE: "No information disclosure statement may be filed in a provisional application." 37 C.F.R. § 1.51(d). "Any information disclosure statements filed in a provisional application would either be returned or disposed of at the convenience of the Office." Notice of December 5, 1994, 59 Fed. Reg. 63,591, at 63,594.

NOTE: "No amendment other than to make the provisional application comply with the patent statute and all applicable regulations may be made to the provisional application after the filing date of the provisional application." 37 C.F.R. § 1.53©.

NOTE: 35 U.S.C. 119(e) provides that "[i]f the day that is 12 months after the filing date of a provisional application falls on a Saturday, Sunday, or Federal Holiday within the District of Columbia, the period of pendency of the provisional application shall be extended to the next succeeding secular or business day."

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 C.F.R. § 1.51(c)(1)(i).

1. The following comprises the information required by 37 C.F.R. § 1.51(c)(1):
2. The name(s) of the inventor(s) is/are (37 C.F.R. § 1.51(c)(1)(ii)):

NOTE: "If the correct inventor or inventors are not named on filing a provisional application without a cover sheet under § 1.15(c)(1), the later submission of a cover sheet under § 1.15(c)(1) during the pendency of the application will act to correct the earlier identification of inventorship." 37 C.F.R. § 1.48(f)(2).

NOTE: "The naming of inventors for obtaining a filing date for a provisional application is the same as for other applications. A provisional application filed with the inventors identified as 'Jones et al.' will not be accorded a filing date earlier than the date upon which the name of each inventor is supplied unless a petition with the fee set forth in § 1.17(i) is filed which sets forth the reasons the delay in supplying the names should be excused. Administrative oversight is an acceptable reason. It should be noted that for a 35 U.S.C. 111(a) application to be entitled to claim the benefit of the filing date of a provisional application, the 35 U.S.C. 111(a) application must have at least one inventor in common with the provisional application." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.

The term "invention" is typically used to refer to subject matter which applicant is claiming in his/her application. Because claims are not required in a provisional application, it would not be appropriate to reference joint inventors as those who have made a contribution to the "invention" disclosed in the provisional application. If the "invention" has not been determined in the provisional application because no claims have been presented, then the name(s) of those person(s) who have made a contribution to the subject matter disclosed in the provisional application should be submitted. Section 1.45(c) states that "if multiple inventors are named in a provisional application, each named inventor must have made a contribution, individually or jointly, to the subject matter disclosed in the provisional application." All that § 1.45(c) requires is that if someone is named as an inventor, that person must have made a contribution to the subject matter disclosed in the provisional application. When applicant has determined what the invention is by the filing of the 35 U.S.C. 111(a) application, that is the time when the correct inventors must be named. The 35 U.S.C. 111(a) application must have an inventor in common with the provisional application in order for the 35 U.S.C. 111(a) application to be entitled to claim the benefit of the provisional application under 35 U.S.C. 119(e). Notice of April 14, 1995, 60 Fed. Reg. 20,195 at 20,208.

See 37 C.F.R. § 1.53.

1. <u>Selim</u> GIVEN NAME	<u>S.</u> MIDDLE INITIAL OR NAME	<u>Balcisoy</u> FAMILY OR LAST NAME
2. <u>Marta</u> GIVEN NAME	<u></u> MIDDLE INITIAL OR NAME	<u>Karczewicz</u> FAMILY OR LAST NAME
3. <u>Tolga</u> GIVEN NAME	<u>K.</u> MIDDLE INITIAL OR NAME	<u>Capin</u> FAMILY OR LAST NAME

3. Residence address(es) of the inventor(s), as numbered above (37 C.F.R. § 1.51(c)(1)(iii):

- 1. 4200 Bridgeview Drive #1337, Fort Worth, Texas 76109 USA
- 2. 1224 Hidden Ridge #3097, Irving, Texas 75038 USA
- 3. 2450 Oak Hill Circle #2531, Fort Worth, Texas 76109 USA

4. The title of the invention is (37 C.F.R. § 1.51 (c)(1)(iv)):

PROGRESSIVE DOWNLOADING OF TIMED MULTIMEDIA CONTENT

5. The name, registration, customer and telephone numbers of the practitioner (if applicable) is (37 C.F.R. § 1.51(c)(1)(v)):

Name of practitioner: Kenneth Q. Lao
Reg. No. 40,061 Tel. (203) 261-1234
Customer No. 004955

(complete the following, if applicable)

☐ A power of attorney accompanies this cover sheet.

6. The docket number used to identify this application is (37 C.F.R. § 1.51(c)(1)(vi)):

Docket No.: 944-001,114

7. The correspondence address for this application is (37 C.F.R. § 1.51(c)(1)(vii)):

Ware, Fressola, Van Der Sluys & Adolphson LLP
755 Main Street, P.O. Box 224, Monroe, CT 06468

8. Statement as to whether invention was made by an agency of the U.S. Government or under contact with an agency of the United States Government.
(37 C.F.R. § 1.51(c)(1)(viii))

This invention was made by an agency of the United States Government, or under contract with an agency of the United States Government

- ☒ No
☐ Yes

The name of the U.S. Government agency and the Government contract number are:

9. Identification of documents accompany this cover sheet:

A. Documents required by 37 C.F.R. §§ 1.51(c)(2)-(3):

Specification: No. of pages 12
Drawings: No. of sheets 2

B. Additional documents:

☒ Claims: No. of claims 20

Note: See 37 C.F.R. § 1.51.

- ☐ Power of attorney
☐ Assignment
☐ Other

NOTE: Provisional applications may be filed in a language other than English as set forth in existing § 1.52(d). However, an English language translation is necessary for security screening purposes. Therefore, the PTO will require the English language translation and payment of the fee mandated in § 1.52(d) in the provisional application. Failure to timely submit the translation in response to a PTO requirement will result in the abandonment of the provisional application. If a 35 U.S.C. 111(a) application is filed without providing the English language translation in the provisional application, the English language translation will be required to be supplied in every 35 U.S.C. 111(a) application claiming priority of the non-English language provisional application. Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.

(Cover Sheet for Filing Provisional Application [23-1] page 3 of 4)



10. Fee

The filing fee for this provisional application, as set in 37 C.F.R. § 1.16(k), is \$160.00, for other than a small entity, and \$80.00, for a small entity.

☐ Applicant is a small entity.

NOTE: "A . . . statement in compliance with existing § 1.27 is required to be filed in each provisional application in which it is desired to pay reduced fees." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,197.

11. Small entity statement

☐ This is a filing by a small entity under 37 C.F.R. §§ 1.19 and 1.27.

12. Fee payment

☒ Fee payment in the amount of \$160.00 is being made at this time.

☐ No filing fee is to be paid at this time. (This and the surcharge required by 37 C.F.R. 1.16(l) can be paid subsequently).

13. Method of fee payment

☒ Check in the amount of \$160.00

☐ Charge Account No. _____, in the amount of \$ _____

A duplicate of this Cover Sheet is attached.

Date: July 1, 2003

Tel. No. ()

Date: July 1, 2003

Reg. No. 40,061

Tel. No. (203) 261-1234

Customer No. 004955

SIGNATURE OF SUBMITTER

OR

SIGNATURE OF PRACTITIONER

Kenneth Q. Lao
(type or print name of practitioner)
Ware, Fressola, Van Der Sluys &
Adolphson LLP
755 Main Street
P.O. (Correspondence) Address
P.O. Box 224
Monroe, CT 06468

PROGRESSIVE DOWNLOADING OF TIMED MULTIMEDIA CONTENT

Field of the Invention

The present invention relates generally downloading of files and, more specifically, to start-up delay in progressive downloading.

Background of the Invention

In progressive downloading of multimedia content, the client usually buffers some data for a certain time so that decoding of the content can be carried out properly and in a timely manner. If the client starts playing the content too early, some parts of the content may still be downloaded when they should already be played. On the other hand, if the client starts playing the content very late or the start-up delay is very long, the client needs an unnecessarily large buffer to store the already downloaded files and long delay decreases end user experience. It is desirable to minimize the start-up delay so that the client can begin playing the content before the downloading of the entire file is finalized.

Let us use files that contain the Scalable Vector Graphics (SVG) as an example. SVG is a language for describing two-dimensional graphics in XML (eXtensible Markup Language), which allows for three types of graphic objects: vector graphic shapes, images and text. Graphic objects can be grouped, transformed and composed into previously rendered objects. SVG drawings can be interactive and dynamic and can also be used in animation. SVG content can be arranged in groups such that each of them can be processed and displayed independently from the following groups (groups delivered later in time). In what follows we will refer to such groups as scenes. To each scene we can assign time inferred from the content at which its presentation should start (called *content presentation time* or *content start time*) with relation to other scenes.

When the client downloads an SVG file stored on a server, the file is received at a given bit rate depending on the bandwidth available between the client and the server and is stored in the client's buffer. When the desired *start-up delay* is reached, the client starts displaying the content of the file. Start-up delay is the difference between the beginning of the file download and the start of the file's content presentation.

It has been realized that while it is desirable to minimize the start-up delay such that the client can begin playing the content before the downloading of the entire file is finalized,

the start-up delay has to be sufficient to ensure that each scene is received before its player presentation time.

Currently, Macromedia Flash is a propriety format for vector graphics. It implements a solution where the size of the file and its duration (playing time) can be inferred from the information, such as file length, frame rate and frame count given at the beginning of the file. However, based only on this information the client cannot estimate accurately the start-up delay for content such as SVG.

BIFS is the MPEG-4 Binary Format for Scene Description. It describes the spatio-temporal arrangements of the objects in the scene. The metadata for scene description is integrated into MPEG-4 file format (MP4) as scene description track, which is multiplexed with media tracks (audio, video and graphics). The BIFS solution requires adapting MPEG-4 systems.

Summary of the Invention

The present invention provides a method for progressive downloading of timed content, wherein a table that specifies the properties for the scenes in the content is provided by the server so as to allow the client to compute the appropriate start-up delay. The table may list the size, start time and minimum transmission rate for each scene. Additionally, the end time for each scene may be given in order to save memory.

Thus, according to the first aspect of the present invention, there is provided a method of signaling in a network, the network having a least a client, and a server for transmitting to the client data having a plurality of components, the components having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size. The method comprises:

conveying to the client information indicative of the content properties of the components; and

determining in the client, responsive to the information, a start-up delay in the presentation based on the content properties of the components.

The information may be indicative of the content presentation times of the components and further indicative of content end times of the components.

The method further comprises the step of presenting the components at player start times of the components based on the start-up delay and the content presentation times of the components.

The information may be further indicative of content end times of the components, and the method further comprises the step of removing a portion of the data after presenting said portion of the data based on the content start times and the content end times of the components.

The information may be indicative of the component sizes.

The information is conveyed to the client prior to the downloading of the data.

The information may be indicative of minimum bandwidths for the components based on the transmission rate.

The content properties comprise content presentation times of the components and content end times of the components, and the method further comprises:

presenting the components at player start times of the components based on the component size and the content presentation times of the components; and

removing one or more components after presenting said one or more components based on the content presentation times and the content end time of said one or more components while presenting other components in the data.

According to the second aspect of the present invention, there is provided a multimedia system, which comprises:

at least a client having a data buffer, and

at least a server for transmitting to the client data having a plurality of components, the components having various content properties so as to allow the client to download the data in the data buffer before presenting at least a part of the data, each component has a component size,

the server comprises:

means for determining the content presentation times of the components based on the component sizes and the content properties of the components; and

means for conveying to the client information indicative of the presentation times of the components, and

the client comprises:

means for receiving the conveyed information; and
means for determining a start-up delay in the presentation based on the received information.

The client further comprises

means for presenting the data according to player start times of the components based on the start-up delay and the content presentation times of the components.

The conveyed information is further indicative of content end times of components and the client is adapted to

removing one or more components after presenting said one or more components based on the content presentation times of the components and the content end times of the components.

The information may be indicative of minimum bandwidths in transmitting the components based on the transmission rate, and the client is adapted to

removing one or more components after presenting said one or more components based on the content presentation times and the minimum bandwidths of the components.

According to the third aspect of the present invention, there is provided a server in a multimedia network, the network having at least a client, the server is adapted to transmit to the client data having a plurality of components, the components having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size. The server comprises:

means for determining the content presentation times of the components based on the component sizes and the content properties of the files; and

means for conveying to the client information indicative of the presentation times so as to allow the client to determine a start up delay in the presentation based on the information.

According to the fourth aspect of the present invention, there is provided a client in the multimedia network, the network having at least a server for transmitting to the client data having a plurality of components, the components having various content properties so as to allow the client to download the data before presenting at least a part of the data, each component having a component size, wherein the server further transmits to the client information indicative of the content properties of the components. The client comprises:

a buffer for storing at least part of the data; and
means, responsive to the information, for determining a start up delay in the presentation based on the content properties of the components.

According to the fifth aspect of the present invention, there is provided a computer program for use in a server in a network, the network having at least a client, wherein the server is adapted to transmit to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size. The computer program comprises:

a first code to determine the presentation times based on the component size and the content properties of the files; and

a second code to generate information indicative of the presentation times, so as to allow the client to determine a start up delay in the presentation.

According to the sixth aspect of the present invention, there is provided a computer program for use in a client in a network, the network having at least a server for transmitting to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, wherein the server is adapted to transmit to the client information indicative of the content properties. The computer program comprises

a code to determine a start up delay in the presentation; and

a code to determine player start times of the components based on the content properties and the start-up delay in the presentation.

The present invention will become apparent upon reading the description taken in conjunction with Figures 1 and 2.

Brief Description of the Drawing

Figure 1 is a block diagram illustrating a network system having a server and a client.

Figure 2 is a flowchart illustrating the method for determining the start-up delay at a client, according to the invention.

Detailed description of the Invention

Figure 1 shows a network system 1 having a multimedia server 10 and a multimedia client 50. The server 10 is used to send encoded data to the client 50 through a network 30 so that the client 50 can decoded the data for playing on a playing device 70.

The server 10 has data storage 22 for storing files to be transmitted to the client 50 via a transmitter 28. The server 10 also has a software program 24 which can be used to generate a table 26 listing the properties of the scenes in the files so as to allow the client 50 to estimate the start-up delay. The client 50 has a data buffer 60 for storing the files downloaded via a receiver 68 from the server 10 for a certain time so that the content of the downloaded files can be decoded by the decoder 64 and played on the playing device 70 properly. In order to minimize the memory usage, the client 50 has a computer program 62 for computing the appropriate start up delay and player start time.

Let us consider the following example. The size of the SVG file is equal to 175 kbits and its duration to 9 sec. The file contains an animation presentation comprising 7 scenes. In Table I we list the size after compression and the content start time for each scene. Notice that the presentation of scene 4 starts at the same time as scene 5. This means that the file for scene 4 may include only the definition of elements used in the three following scenes: scenes 5, 6 and 7. In that respect, the properties of one or more scenes in the content may be different from the other scenes. Due to the difference in properties, the files may not be presented in a sequential manner in reference to the order in which the files are downloaded.

The content presentation times assume that start-up delay is equal to 0. Client calculates the valued of the start-up delay and the *player start time (player presentation time)* by offsetting the content start time for each scene by start-up delay. For example, if the start-up delay is equal to 2 sec, the player start time for the scene 1 is equal to 2 sec instead of 0 as listed in the table.

Scene number	Compressed size [kbits]	Content start time [s]
1	20	0
2	20	1
3	20	2
4	100	3
5	5	3
6	5	5
7	5	7

Table I

While it is desirable to minimize the start-up delay such that the client can begin playing the content before the downloading of the entire file is finalized, the start-up delay has to be sufficient to ensure that each scene is received before its player presentation time. For example let us assume that the available bandwidth, while downloading the file described in Table I, is equal to 20 kbits/sec. If the client decides to start playing the content after receiving the first scene (scene 1), the start-up delay is equal to 1 sec. The player start time for the scene 5, which is taking into consideration the start-up delay, is equal to 4 sec. It should be noted that the file for scene 5 will be completely downloaded after 8.25 sec ($165 \text{ [kbits]} / 20 \text{ [kbits/sec]} = 8.25 \text{ [sec]}$), and 4.25 sec after it should be presented at $t=4$ sec. It is impossible to present to a scene before it is downloaded. Thus, it is necessary that the client starts playing at a later time. Furthermore, it is also advantageous that the client knows which parts of the file can be discarded after presenting them so as to minimize the memory usage.

To demonstrate that the knowledge of the total file size and its duration is not sufficient to estimate correctly the start up-delay let us again refer to the file described in Table I and assume that the available bandwidth is equal to 20 kbits/sec. Since the duration of the file is 9 sec and the file will be fully received in 8.75 sec ($= 175 \text{ [kbits]} / 20 \text{ [kbits/sec]}$), the client can decide to start presentation of the file content just after receiving the first scene. In this case, as demonstrated earlier, scene 5 will not be received on time. ^o

According to the present invention, the table 26 lists the size and content presentation time of scenes, as shown in Table II. The client 50 will receive the scene properties prior to receiving the actual content of the scenes (data).

Size (Scene 1)
Content Presentation Time (Scene 1)
Size (Scene 2)
Content Presentation Time (Scene 2)
...
Size (Scene n)
Content Presentation Time (Scene n)
Data (Scene 1)
Data (Scene 2)
...
Data (Scene n)

TABLE II

Alternatively, the scene information as listed in table 26 includes minimum bandwidth B_m (minimum rate) in transmission to ensure that each remaining scene will be available before its player presentation time if the client starts the presentation of the entire file after the reception of this scene. If the estimated bandwidth is equal to B , the client can start displaying the content of the file after receiving the scene for which the minimum rate value B_m is larger than B . Minimum rates for all the scenes do not have to be included at the beginning of the file. It is sufficient if the minimum rate for each scene is received together with that scene. The structure of the file is in this case is as follows:

Minimum Rate (Scene 1)
Minimum Rate (Scene 2)
...
Minimum Rate (Scene n)
Data (Scene 1)
Data (Scene 2)
...
Data (Scene n)

TABLE III

For the file as described in Table I, the minimum rates rounded up to the nearest kbits/sec are as follows:

Scene 1:	49
Scene 2:	42
Scene 3:	35
Scene 4:	3
Scene 5:	2
Scene 6:	1

Accordingly, if the estimated bandwidth is equal to 20 kbits/sec the client can start the presentation of the file after receiving scene 4, to which the assigned value of minimum rate in transmission is equal to 3 kbits/sec.

In order to compute the minimum rate for each scene, the software program 24 may have the following pseudo code:

```
scene_size={20, 20, 20, 100, 5, 5, 5};
content_start_time={0, 1, 2, 3, 3, 5, 7};
number_of_scenes=7;
```

```

for (i=1; i<number_of_scenes; i++){
    cumulative_size[i-1]=0;
    for (j=i; j<n; j++){
        cumulative_size[j]=cumulative_size[j-
1]+scene_size[j];
    }

    minimum_rate[i-1]=0;
    for (j=i; j< number_of_scenes; j++){
        rate=cumulative_size[j]/content_start_time[j];
        if (rate>minimum_rate[i-1]){
            minimum_rate[i-1]=rate;
        }
    }
}

```

It should be noted that not all the scenes in the SVG file will have end time explicitly specified. For example, the file scene 4 described in Table I can be just a definition of elements used in following scenes. Thus, in order to provide a hint to the client how long to keep each scene in the memory for each scene, the *content end time* for each scene may also be signaled to the client 50. Using the scene examples from Table I, the content start time and the content end time are listed in Table IV. As can be seen in TABLE IV, all the scenes with exception of scene 4 can be discarded immediately after their presentation.

Scene number	Content start time [s]	Content end time [s]
1	0	1
2	1	2
3	2	3
4	3	9
5	3	5
6	5	7
7	7	9

Table IV

Alternatively we can specify that a given scene should be kept till the arrival and display of scene number m . For example, scene 1 has to be kept just till the end of its own presentation, i.e., $m=1$. Scene 4 has to be kept till the end of the presentation of scene 7, i.e., $m=7$.

In sum, the signal method for use in the client to determine the start-up delay can be based on the sizes of the data components or the minimum rate in transmission of the data components. As shown in the flowchart 100, the client obtains available bitrate at step 110. At step 120, it is determined whether the information received from the server contains the size of the data components or the minimum bandwidth. If the information is indicative of the size of the data components, the client computes cumulative sizes for components at step 130 and divides the cumulative sizes, at step 132, by the available bitrate as obtained step 110 in order to obtain the "cumulative play times". The client subtracts the content start time, at step 134, from the cumulative play times for determining the start-up delay at step 150. Alternatively, if the minimum bandwidths for the data components are available from the information conveyed by the server, the client finds last component where minimum rate for component is greater than the average rate, at step 140, in order to determine the start-up delay at step 150.

Although the invention has been described with respect to a preferred embodiment thereof, it will be understood by those skilled in the art that the foregoing and various other

changes, omissions and deviations in the form and detail thereof may be made without departing from the scope of this invention.

What is claimed is:

1. A method of signaling in a network, the network having at least a client, and a server for transmitting to the client data having a plurality of components, the components having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, said method comprising:
 - conveying to the client information indicative of the content properties of the components; and
 - determining in the client, responsive to the information, a start-up delay in the presentation based on the content properties of the components.
2. The method of claim 1, wherein the information is indicative of the content presentation times of the components.
3. The method of claim 2, wherein the information is further indicative of content end times of the components.
4. The method of claim 2, further comprising
 - presenting the components at player start times of the components based on the start-up delay and the content presentation times of the components.
5. The method of claim 4, wherein the information is further indicative of content end times of the components, said method further comprising
 - removing a portion of the data after presenting said portion of the data based on the content start times and the content end times of the components.
6. The method of claim 1, wherein the information is indicative of the component sizes.
7. The method of claim 1, wherein the information is conveyed to the client prior to the downloading of the data.

8. The method of claim 1, wherein the data is transmitted at a transmission rate in the network, and the information is indicative of the transmission rate.
9. The method of claim 1, wherein the data is transmitted at a transmission rate in the network, and the information is indicative of minimum bandwidths for the components based on the transmission rate.
10. The method of claim 1, wherein the content properties comprise content presentation times of the components and content end times of the components, said method further comprising
 - presenting the components at player start times of the components based on the component size and the content presentation times of the components; and
 - removing one or more components after presenting said one or more components based on the content presentation times and the content end time of said one or more components while presenting other components in the data.
11. A multimedia system comprising:
 - at least a client having a data buffer, and
 - at least a server for transmitting to the client data having a plurality of components, the components having various content properties so as to allow the client to download the data in the data buffer before presenting at least a part of the data, each component has a component size,
 - the server comprises:
 - means for determining the content presentation times of the components based on the component sizes and the content properties of the components; and
 - means for conveying to the client information indicative of the presentation times of the components, and
 - the client comprises:
 - means for receiving the conveyed information; and

means for determining a start-up delay in the presentation based on the received information.

12. The system of claim 11, wherein the client further comprises
means for presenting the data according to player start times of the components based on the start-up delay and the content presentation times of the components.

13. The system of claim 12, wherein the conveyed information is further indicative of content end times of components and the client is adapted to
removing one or more components after presenting said one or more components based on the content presentation times of the components and the content end times of the components.

14. The system of claim 11, wherein the information is conveyed to the client prior to the downloading of the data.

15. The system of claim 12, wherein the data are transmitted at a transmission rate and the information is indicative of minimum bandwidths in transmitting the components based on the transmission rate.

16. The system of claim 15, wherein the client is adapted to
removing one or more components after presenting said one or more components based on the content presentation times and the minimum bandwidths of the components.

17. A server in a multimedia network, the network having at least a client, the server is adapted to transmit to the client data having a plurality of components, the components having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, said server comprising:

means for determining the content presentation times of the components based on the component sizes and the content properties of the files; and

means for conveying to the client information indicative of the presentation times so as to allow the client to determine a start up delay in the presentation based on the information.

18. A client in the multimedia network, the network having at least a server for transmitting to the client data having a plurality of components, the components having various content properties so as to allow the client to download the data before presenting at least a part of the data, each component having a component size, wherein the server further transmits to the client information indicative of the content properties of the components, said client comprising:

a buffer for storing at least part of the data; and

means, responsive to the information, for determining a start up delay in the presentation based on the content properties of the components.

19. A computer program for use in a server in a network, the network having at least a client, wherein the server is adapted to transmit to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, said computer program comprising:

a first code to determine the presentation times based on the component size and the content properties of the files; and

a second code to generate information indicative of the presentation times, so as to allow the client to determine a start up delay in the presentation.

20. A computer program for use in a client in a network, the network having at least a server for transmitting to the client data having various content properties, so as to allow the client to download the data in a client buffer before presenting at least a part of the data, each component having a component size, wherein the server is adapted to transmit to the client information indicative of the content properties, said computer program comprising

a code to determine a start up delay in the presentation; and

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2.3

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a code to determine player start times of the components based on the content properties and the start-up delay in the presentation.

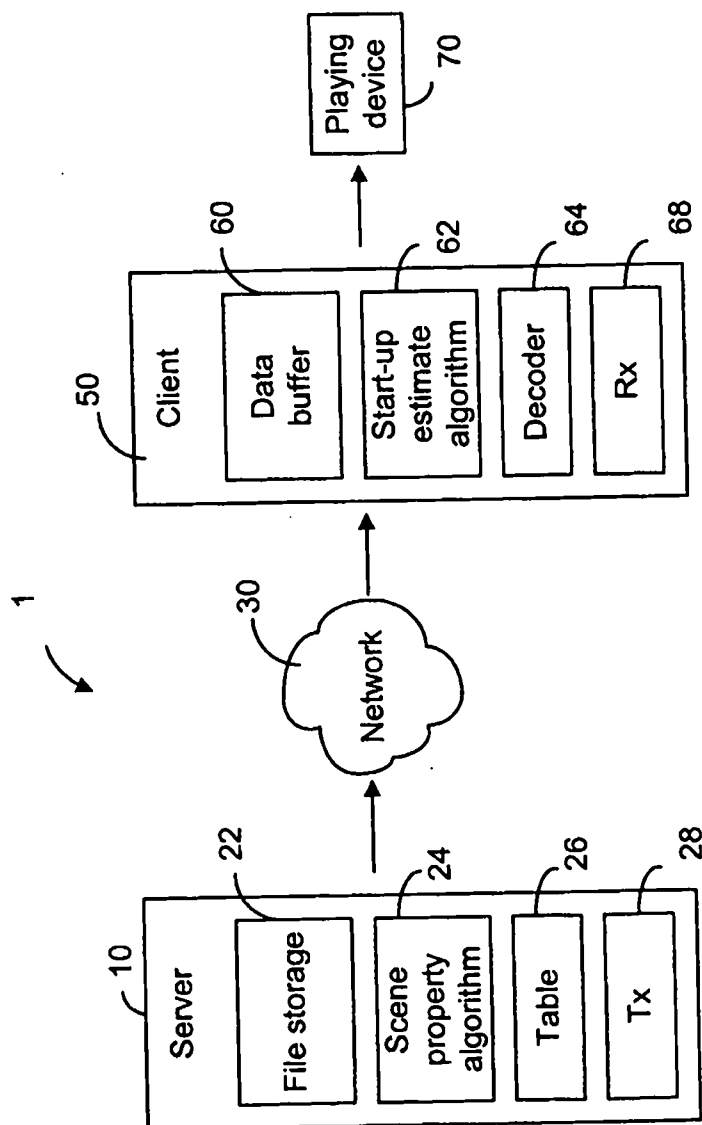


FIG. 1

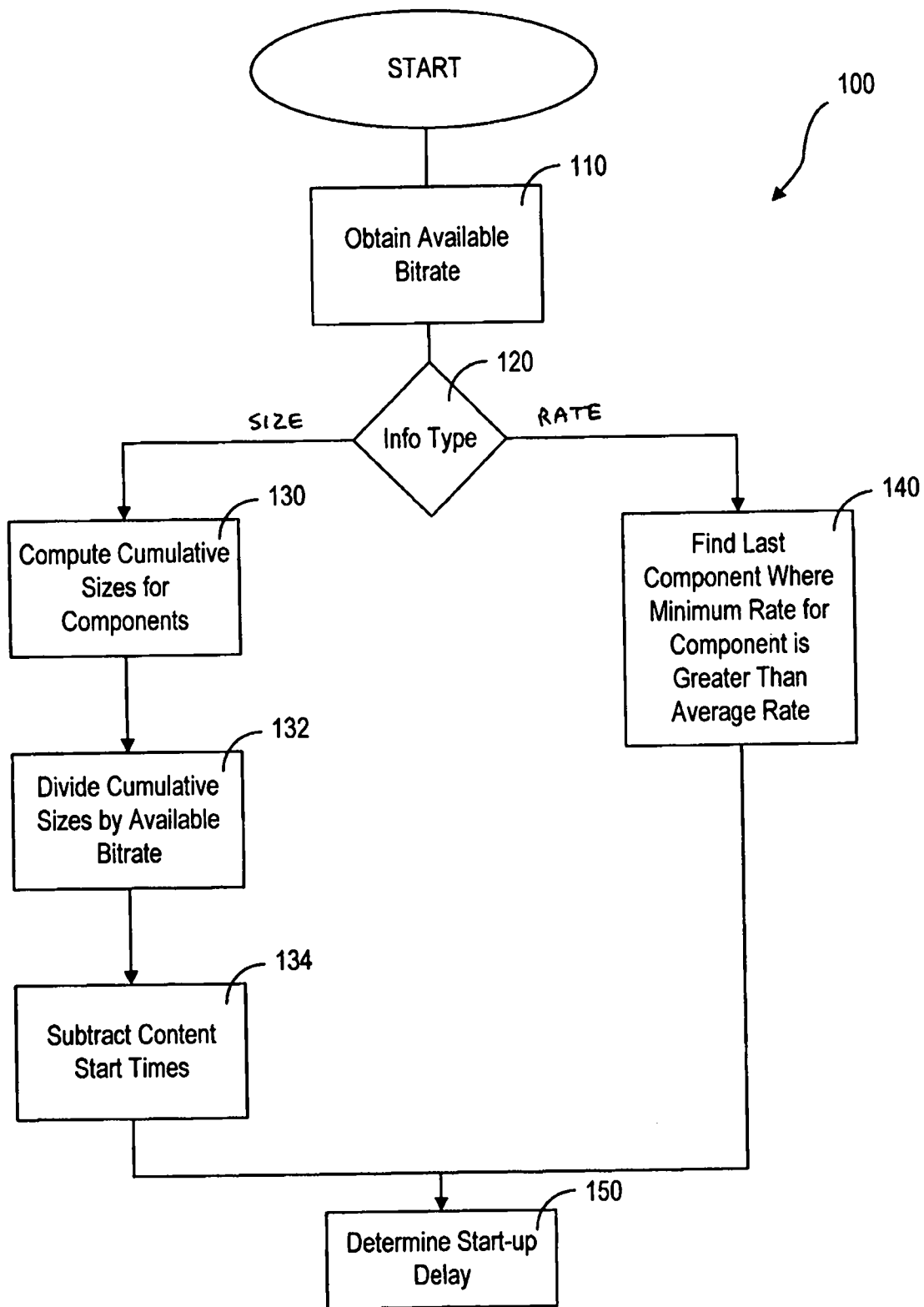


Fig. 2

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SOLICITUD NUMERO: 60/484,507

FECHA DE PRESENTACIÓN: 1 de julio de 2003

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REIVINDICACIONES

Lo que se reivindica es:

1. Un método para señalar en una red, la red tiene por lo menos un cliente, y un servidor para transmitir al cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido, de modo que se permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, dicho método comprende:

Transportar al cliente la información indicativa de las propiedades del contenido de los componentes; y

Determinar en el cliente, en respuesta a la información, un retardo de inicio en la presentación con base en las propiedades del contenido de los componentes.

2. El método de acuerdo con la reivindicación 1, en donde la información es indicativa de los tiempos de presentación del contenido de los componentes.
3. El método de acuerdo con la reivindicación 2 en donde la información es indicativa de los tamaños del componente.

4. El método de acuerdo con la reivindicación 2, que además comprende

Presentar los componentes en los tiempos de inicio de jugador de los componentes con base en el retardo de inicio y los tiempos de presentación del contenido de los componentes.

5. El método de acuerdo con la reivindicación 4, en donde la información es indicativa adicionalmente de los tiempos finales del contenido de los componentes, dicho método adicionalmente comprende:

Remover una porción de los datos después de presentar dicha porción de los datos con base en los tiempos de inicio del contenido y los tiempos finales del contenido de los componentes.

6. El método de acuerdo con la reivindicación 1, en donde la información es indicativa de los tamaños de los componentes.

7. El método de acuerdo con la reivindicación 1, en donde la información es transportada al cliente antes de la descarga de los datos.

8. El método de acuerdo con la reivindicación 1, en donde los datos son transmitidos a una velocidad de

transmisión en la red, y la información es indicativa de la velocidad de transmisión.

9. El método de acuerdo con la reivindicación 1, en donde los datos son transmitidos a una velocidad de transmisión en la red, y la información es indicativa de los anchos de banda mínimos para los componentes con base en la velocidad de transmisión.
10. El método de acuerdo con la reivindicación 1, en donde las propiedades del contenido comprenden tiempos de presentación del contenido de los componentes y tiempos finales de los contenidos de los componentes, dicho método adicionalmente comprende:

Presentar los componentes en los tiempos de inicio del jugador de los componentes con base en el tamaño del componente y los tiempos de presentación del contenido de los componentes; y

Remover uno o más componentes después de presentar dichos uno o más componentes con base en los tiempos de presentación del contenido y los tiempos finales del contenido de dichos uno o más componentes mientras se presenta otros componentes en los datos.

11. Un sistema de multimedios que comprende:

Por lo menos un cliente que tiene una memoria de datos, y

Por lo menos un servidor para transmitir al cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido de modo que se permite al cliente descargar los datos en la memoria de datos antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, en donde

el servidor comprende:

Medios para determinar los tiempos de presentación del contenido de los componentes con base en los tamaños de componente y las propiedades del contenido de los componentes; y

Medios para transportar al cliente la información indicativa de los tiempos de presentación de los componentes; y

El cliente comprende:

Medios para recibir la información transportada; y

Medios para determinar un retardo de inicio en la presentación con base en la información recibida.

12. El sistema de acuerdo con la reivindicación 11, en donde el cliente comprende adicionalmente:

Medios para presentar los datos de acuerdo con los tiempos de inicio de jugador de los componentes con base en el retardo de inicio y los tiempos de presentación del contenido de los componentes.

13. El sistema de acuerdo con la reivindicación 12, en donde la información transportada es indicativa adicionalmente de los tiempos finales del contenido de los componentes y que el cliente está adaptado para

remover uno o más componentes después de presentar dichos uno o más componentes con base en los tiempos de presentación del contenido de los componentes y los tiempos finales del contenido de los componentes.

14. El sistema de acuerdo con la reivindicación 11, en donde la información es transportada al cliente antes de la descarga de los datos.

15. El sistema de acuerdo con la reivindicación 12, en donde los datos son transmitidos a una velocidad de transmisión y la información es indicativa de los anchos de banda mínimos en la transmisión de los componentes con base en la velocidad de transmisión.

16. El sistema de acuerdo con la reivindicación 15, en donde el cliente está adaptado para remover uno o más componentes después de presentar dichos uno o más componentes con base en los tiempos de presentación del contenido y los anchos de banda mínimos de los componentes.
17. Un dispositivo servidor en una red multimedia, la red tiene por lo menos un cliente, el dispositivo servidor está adaptado para transmitir al cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido, de modo que se le permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, dicho dispositivo servidor comprende:

Medios para determinar los tiempos de presentación de contenido de los componentes con base en los tamaños del componente y las propiedades del contenido de los archivos; y

Medios para transportar al cliente información indicativa de los tiempos de presentación de modo que se le permite al cliente determinar un retardo de inicio en la presentación con base en la información.

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8.

18. Un dispositivo de cliente en la red de multimedia, la red tiene por lo menos un servidor para transmitir al dispositivo de cliente datos que tienen una pluralidad de componentes, los componentes tienen varias propiedades de contenido de modo que se permite al dispositivo de cliente descargar los datos antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, en donde el servidor transmite adicionalmente al dispositivo de cliente información indicativa de las propiedades de contenido de los componentes, dicho dispositivo de cliente comprende:

Una memoria para almacenar por lo menos parte de los datos;
y

Medios, en respuesta a la información, para determinar un retardo de inicio en la presentación con base en las propiedades del contenido de los componentes.

19. Un programa de computador para uso en un servidor en una red, la red tiene por lo menos un cliente, en donde el servidor está adaptado para transmitir al cliente datos que tienen varias propiedades de contenido, de modo que se le permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un

tamaño de componente, dicho programa de computador comprende:

Un primer código para determinar los tiempos de presentación con base en el tamaño de componentes y las propiedades del contenido de los archivos; y

Un segundo código para generar información indicativa de los tiempos de presentación, de modo que se le permite al cliente determinar un retardo de inicio en la presentación.

20. Un programa de computador para uso en un cliente en una red, la red tiene por lo menos un servidor para transmitir al cliente datos que tienen varias propiedades de contenido, de modo que se le permite al cliente descargar los datos en una memoria de cliente antes de presentar por lo menos una parte de los datos, cada componente tiene un tamaño de componente, en donde el servidor está adaptado para transmitir al cliente información indicativa de las propiedades de contenido, dicho programa de computador comprende:

Un código para determinar un retardo de inicio en la presentación; y

Un código para determinar tiempos de inicio de jugador de los componentes con base en las propiedades de contenido y el retardo de inicio en la presentación.

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