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Patent Claims Revisited

By Dargaye Churnet*

This paper proposes that the most beneficial patent reform begins with claim drafting regulations. Part I serves as an introduction. Part II highlights the problems with the nation's current patent system. This section discusses how each of these problems is caused in part by the current claim drafting regulations. Part III reviews the changes made by the America Invents Act. Part IV proposes new regulations for claim drafting that will offer more significant benefits than those provided by the America Invents Act. Specifically, this paper argues that by requiring applicants to include a claim chart defining each claim limitation, examiners at the PTO will need less time to understand the patent's scope, the PTO will issue higher quality patents, and patent litigation costs will be diminished because courts will devote less time to claim construction.

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I. INTRODUCTION

¶1 On September 16, 2011, President Obama signed into law the most influential patent reform legislation in nearly sixty years. The Leahy-Smith America Invents Act ("Act") is Congress's attempt to overhaul a beleaguered patent system, which many believe was long overdue for reform. The Act does just that. It drastically changes the

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filing system for U.S. patents along with the procedures for challenging applications filed to the United States Patent and Trademark Office (PTO). The Act further permits the PTO to set its own fees and maintain these funds in a separate account, thereby allowing the PTO to hire more examiners to attack the tremendous patent application backlog.

¶2 The Act was designed to fix a broken patent system. The U.S. patent system's problems include patent pendency (the time it takes the PTO to respond from the date on which the applicant files the application), the PTO's application backlog, the patent examination quality at the PTO, patent litigation costs, and abuse of the patent system by patent trolls, to name a few.

¶3 Although the Act addresses many of these issues peripherally, it fails to address the cause of most problems in the patent system. The problems faced in litigation are the result of a system that allows an inventor to amorphously define the metes and bounds of her invention. Far too often, patents—and, more specifically, the patent's claims—offer little guidance to third parties as to what exactly has been invented. Such confusion leaves even well-meaning manufacturers unaware that their devices or processes infringe upon another's intellectual property rights. This, in turn, leads the patentee to bring the infringer to court in an attempt to recover damages.

¶4 Before a court can address the issue of damages, it must first analyze the limitations of the asserted claims through claim construction. Through this process, the court reviews the patent's claims along with the prosecution history in an attempt to accurately ascertain the metes and bounds of the invention. Once the claim terms are defined, the court can then determine whether the defendant has infringed. Thus, claim construction is a pivotal element of patent litigation.

¶5 The claims are, similarly, the central focus of the patent examiner's review at the PTO. When the applicant has conceived of an invention and drafted a patent application, she submits it to the PTO for examination. An examiner must review the entire application under significant time constraints, and then search for relevant prior art references and draft an Office Action explaining why he has rejected or allowed the patent. The examiner's determination of whether the patent will be issued is based almost exclusively on the claims. The examiner must interpret the claims in light of the entire specification.

¶6 Reading an entire patent application and gaining a thorough understanding of the claims may take weeks. Patent examiners, however, are expected to do so in less than 24 hours. It is no wonder, then, that many have questioned the quality of patents the PTO has issued. It is unreasonable to expect a patent examiner to adequately review patent claims vaguely linked to a lengthy and technical specification in such a short amount of time. These "bad patents" the PTO grants then become the issue of litigation and claim construction.

¶7 This paper proposes that the most beneficial patent reform begins with claim drafting regulations. Part II highlights the problems with the nation's current patent system. This section discusses how each of these problems is caused in part by the current claim drafting regulations. Part III reviews the changes made by the America Invents Act. Part IV proposes new regulations for claim drafting that will offer more significant benefits than those provided by the America Invents Act. Specifically, this paper argues that by requiring patent applications to include a claim chart defining each claim limitation, the examiner at the PTO will need less time to understand the patent's

scope, the PTO will issue higher quality patents, and patent litigation costs will be diminished because courts will devote less time to claim construction.

II. PATENT PROCESS

A. Claim Drafting

¶8 To understand the value of claim drafting reform, one must first understand the critical role that claims play throughout the patent process. The process begins when an inventor conceives of a novel method, machine, manufacture, or composition of matter.[1] The inventor will likely seek to protect her intellectual property rights to the invention. She does so by applying for a patent, which rewards her full disclosure of the innovation with a temporary monopoly on the rights to the invention.[2]

¶9 The inventor—or more often, her patent attorney—must then draft a patent application to submit to the PTO. The application includes, in relevant parts: an abstract, drawings, a brief description of the drawings and invention, a specification describing the invention in detail, and, most importantly, the claims.[3]

¶10 Each section of the patent application plays a different role in providing as full a description of the invention as possible. The application begins with an abstract that provides the reader with a single- paragraph description of the invention, the details of which will be expounded upon throughout the application.[4] Next, the application must include drawings that are "necessary to understand the subject matter to be patented."[5] These drawings "show every feature of the invention as specified in the claims."[6] Depending on the invention, the drawings often display the invention from multiple views, with identifying symbols and references to allow the reader to associate the drawings with the claims and detailed specification.[7]

¶11 Immediately following the drawings is a section briefly describing each drawing in one or two sentences, providing the reader with a greater understanding of the aspects of the invention being displayed in the drawings.[8] Next, the inventor provides a brief summary of the invention. This section "should present the substance or general idea of the claimed invention in summarized form."[9] The brief summary may identify the invention's benefits and how they overcome preexisting problems in the field of art.[10]

¶12 Each of the previous sections provides support for the claimed invention, but it is the next section—the detailed description of the invention—that provides the most support for the claims. In this section, "the invention must be explained along with the

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[1] *See* 35 U.S.C. § 101 (2006).

[2] *See, e.g.*, Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 730 (2002) ("The patent laws 'promote the Progress of Science and useful Arts' by rewarding innovation with a temporary monopoly.") (quoting U.S. CONST. art. I, § 8, cl. 8)).

[3] *See Nonprovisional (Utility) Patent Application Filing Guide*, USPTO (January 2012), http://www.uspto.gov/patents/resources/types/utility.jsp.

[4] *Id.*

[5] *Id.*

[6] *Id.*

[7] *See* 37 C.F.R. § 1.84 (2011).

[8] *See Nonprovisional (Utility) Patent Application Filing Guide*, *supra* note 3.

[9] *Id.*

[10] *Id.*

process of making and using the invention in full, clear, concise, and exact terms."[11] Most notably, this section must (1) enable a person of ordinary skill in the art to practice the invention, (2) provide a written description of what is being claimed, and (3) describe the best mode for practicing the invention.[12] As the U.S. Court of Appeals for the Federal Circuit pointed out, the "specification aids in ascertaining the scope and meaning of the claims inasmuch as the words of the claims must be based upon the description. The specification is, thus, the primary basis for construing the claims."[13]

¶13 The patent application concludes with a list of the claims. The patent claims' central function is to define the scope of legal protection that the government grants the inventor in return for her disclosure of the invention.[14] Therefore, the patent attorney must reduce the inventor's conception that has been described in a specification, sometimes hundreds of pages long,[15] to a numbered list of one-sentence claims that provide adequate legal protection for the invention.[16] In so doing, the attorney walks a tightrope as he attempts to draft claims that are simultaneously broad and narrow.

¶14 On the one hand, the attorney must ensure that the claims are broad enough to protect the inventor's intellectual property rights to the invention.[17] The broader an attorney drafts the claims, the more coverage the inventor has when suing third parties for infringing the patent. Therefore, broader claims provide the inventor with a more valuable patent.

¶15 On the other hand, excessively broad claims run a greater risk of being rejected by the PTO. The lack of specificity in broad claims provides patent examiners with more room for claim interpretation and a more expansive wealth of prior art that anticipate the claims. Thus, while broad claims are preferable to draft the most valuable patent to the inventor, attorneys must balance this interest with the need for drafting claims narrow enough to avoid an examiner's rejection at the PTO.[18]

¶16 Regardless of how broad the claims may be, their scope cannot extend beyond what is disclosed in the rest of the specification.[19] To satisfy this requirement, the claims simply "must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description."[20] Furthermore, in drafting the claims, the patentee may be her own "lexicographer,"

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[11] *Id*.

[12] *See* 35 U.S.C. § 112 (2006) ("The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.").

[13] Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985).

[14] *See* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 510 (1917) (describing the interpretive rules used by the Court in interpreting patent law).

[15] *See* Sean A. Pager, *Patents on a Shoestring: Making Patent Protection Work for Developing Countries*, 23 GA. ST. U. L. REV. 755, 778 (2007) (describing the technical complexity often associated with patents).

[16] *See* MPEP § 608.01(m) (8th ed. Rev. 10, July 2010).

[17] *See* Steven W. Lundberg et al., *Crafting the Claims*, *in* ELECTRONIC AND SOFTWARE PATENTS: LAW AND PRACTICE, § 6.02.C (Steven W. Lundberg et al. eds., 2d ed. 2005).

[18] *See id*.

[19] *See* MPEP § 608.01(i).

[20] *Id*.

defining terms outside of their plain and ordinary meaning.[21] In so doing, the patentee may refer to elements disclosed in the specification using different terms in the claims.

¶17 Given these considerations, it is essential that one read the entire specification to gain an accurate understanding of the claimed invention. A third party must often read a specification multiple times to gain a thorough understanding of the claims.[22] The lax claim drafting regulations—specifically, for tying the claimed terms to their exact location in the specification—cause many of the current problems with the nation's patent system. Regulations linking the claimed terms with their precise definition will resolve many of the problems presented in patent examination and litigation.

B. Patent Examination

¶18 Once the inventor and her attorney have completed drafting the patent application, they submit it to the PTO for review. A patent examiner knowledgeable in the invention's field of art reviews the application. The examiner must read the entire application and review the drawings.[23] Once the examiner has reviewed the entire specification to gain an understanding of the invention, he reads the claims, giving them "their broadest interpretation consistent with the specification."[24]

¶19 Next, the examiner conducts a search of the prior art in an attempt to find references that anticipate or obviate the claims.[25] This search includes patents, publications, and any other evidence showing that the invention was in the public domain before the application was filed or conceived. More likely than not, the examiner will find references that he believes can be used to reject the claims.[26] Once the search is complete, the examiner will draft an Office Action to the applicant explaining why the claims were rejected or why the patent was granted.[27]

¶20 The applicant has an opportunity to amend the claims to overcome the prior art rejections or can argue that the rejections are improper.[28] The examiner will receive the Office Action response from the applicant and perform a new prior art search.[29] The examiner will then send a second Office Action to the applicant similar to the first. This

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[21] *See In re* Bass, 314 F.3d 575, 577 (Fed. Cir. 2002) ("Words in a claim are to be given their ordinary and accustomed meaning unless the inventor chose to be his own lexicographer in the specification."); Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002) ("The patentee may demonstrate an intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.").

[22] *See* Pager, *supra* note 15, at 778.

[23] *See* Rowe v. Dror, 112 F.3d 473, 480 (Fed. Cir. 1997) (Examiners have the "task of examining the entire patent disclosure to discern the meaning of claim words and phrases.").

[24] *In re* Buszard, 504 F.3d 1364, 1366 (Fed. Cir. 2007); *see also In re* Yamamoto, 740 F.2d 1569, 1571 (Fed. Cir. 1984) (employing the specification analysis).

[25] *See* 35 U.S.C. §§ 102, 103 (2006).

[26] *See* Network Appliance, Inc. v. Sun Microsystems, Inc., No. C-07-06053, 2008 U.S. Dist. LEXIS 107840, at *5–6 (N.D. Cal. Nov. 3, 2008) ("[T]he PTO almost always grants initial rejections . . . against all claims.").

[27] *See* MPEP § 706 (8th ed. Rev. 10, July 2010) ("The goal of examination is to clearly articulate any rejection early in the prosecution process so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity.").

[28] *Id.* § 708.

[29] *Id*.

process generally continues until the PTO grants the patent or the applicant abandons the application.

¶21 Two major problems have arisen from the PTO's current process for examining applications. First, the PTO faces a backlog of about one million patent applications.[30] This backlog has lengthened pendency to an average of over two years.[31] The backlog and pendency problem result in courts congested with low quality patent disputes. Second, examiners do not have enough time to gain a complete understanding of the claimed inventions. This leads to (a) examiners rejecting applications using references that do not read on the claims and (b) examiners allowing patents when a more thorough understanding of the claims would have led them to find a reference that rejects the claims.

¶22 The PTO's internal flaws are, in part, the cause of these problems. The average age of newly-hired examiners is around twenty-seven to twenty-eight years old.[32] These young examiners are generally on their first or second job and use the PTO as a docking point in their careers.[33] So, many of these new examiners only stay at the PTO for one to three years.[34] New hires generally spend their first eight months in a patent examining training program and do not examine their first application until their sixth month at the PTO.[35] Many of these examiners leave the PTO and are replaced by an influx of new examiners, who, in turn, leave the PTO after one to three years. Therefore, examiners with very little work experience, let alone patent examining experience, review many patent applications. Furthermore, a new examiner is often put in charge of an application reviewed by an examiner that left the PTO. The new examiner is forced to spend valuable examination time getting familiar with the application and prosecution history.

¶23 Although a supervisor reviews the junior examiner's Office Action and search history, the supervisor is under time constraints and cannot review all of the prior art noted by the junior examiner. Thus, many applications are left to an extremely inexperienced examiner's discretion to determine whether they are worthy of a patent.

¶24 Though not all examiners at the PTO are inexperienced, they all face the examination time constraint. On average, an examiner is expected to review an application within sixteen to seventeen hours.[36] This includes reading the application, searching the prior art, and drafting an Office Action. Because many of the examiners lack technical expertise in their field, much of their examination time is spent sifting through the applicant's documents and reading secondary sources to understand the art presented in the application. Furthermore, examiners often spread the sixteen to seventeen examination hours over three to four years in back and forth correspondence

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[30] *See* BETH SIMONE NOVECK, WIKI GOVERNMENT: HOW TECHNOLOGY CAN MAKE GOVERNMENT BETTER, DEMOCRACY STRONGER, AND CITIZENS MORE POWERFUL 59 (2009); Barry Ashby, *U.S. IP System Needs Improvement*, INDUS. HEATING, July 1, 2007, at 14 (PTO backlog has increased over 500% in the last 10 years).

[31] Steve Seidenberg, *Novel Ideas: PTO Proposes a New Suite of Patent Products to Streamline Applications*, INSIDE COUNS., Jan. 2007, at 22.

[32] Sharon Barner, *Strategies for the USPTO: Ensuring America's Innovation Future*, 8 Nw. J. TECH. INTELL. PROP. 440, 444 (2010).

[33] *Id*.

[34] *Id*.

[35] *Id*. at 445.

[36] John R. Thomas, *Collusion and Collective Action in the Patent System: A Proposal for Patent Bounties*, 2001 U. ILL. L. REV. 305, 314 (2001).

with the applicant.[37] Simply put, examiners are not given enough time to thoroughly review most patent specifications to gain an accurate understanding of the claims.

¶25 The PTO's problems come down to speed and quality. Critics of the current patent system desire a shorter pendency, which would diminish the application backlog, and to have the PTO issue higher quality patents. Given the PTO's internal flaws, coupled with the rapid increase of patent applications filed to the PTO, claim drafting reform would greatly benefit patent examiners and, in turn, the entire patent process. If examiners could more quickly determine the limitations of each claim, they would both spend less time reviewing excessive specifications and have more time to search for the most relevant prior art. In so doing, examiners would be able to reject patents that are anticipated or obviated by the prior art, thereby reducing the number of bad patents granted. However, under the current system, many bad patents are granted. This leads to unwanted effects in patent litigation—namely, rising litigation costs through time spent in claim construction and the emergence of patent trolls abusing the patent system.

C. Patent Litigation

1. Claim Construction

¶26 Claim construction is the court's process of interpreting patent claims to determine their proper scope and meaning. As described above, the PTO must construe an applicant's patent claims to determine patentability in view of novelty, obviousness, enablement and written description.[38] Similarly, manufacturers and innovators may review and interpret the patent claims in order to determine how best to design around or improve upon the claimed invention.[39] Claim interpretation further affects patent licensing negotiations, as the value of patent licenses depends on patent claim scope.[40]

¶27 During patent litigation, claim construction serves the dual purpose of determining whether the defendant has infringed the patent and determining whether the patent is valid.[41] Before a court can determine whether the patent has been infringed, it must first determine the patent claim scope by construing the claims.[42] A validity analysis requires the court to compare the construed claims to the prior art as well as to the patent disclosure itself. Claim construction, therefore, is a critical factor in patent litigation and is often the first step in resolving patent disputes.[43]

¶28 In order to determine whether an accused action infringes the patent or if prior art invalidates the patent, the court must know what the claims in the patent mean. Courts generally give claim terms their plain and ordinary meaning.[44] This interpretation is

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[37] *See* Kristen Osenga, *Entrance Ramps, Tolls, and Express Lanes—Proposals for Decreasing Traffic Congestion in the Patent Office*, 33 FLA. ST. U. L. REV. 119, 130–31 (2005).

[38] *See* Joseph Scott Miller, *Enhancing Patent Disclosure for Faithful Claim Construction*, 9 LEWIS & CLARK L. REV. 177, 192 (2005).

[39] *See* Christopher A. Cotropia, *Patent Claim Interpretation and Information Costs*, 9 LEWIS & CLARK L. REV. 57, 63 (2005).

[40] *See* Miller, *supra* note 38, at 199.

[41] *See* Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 2 (2001) ("[C]laim construction is the touchstone for any infringement or validity analysis.").

[42] *See* Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc).

[43] *See* Cotropia, *supra* note 39, at 74–75.

[44] Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 MICH. L. REV. 101, 102–03

supplemented by the patent's specification and the prosecution history;[45] it may also include the context of other claims in the same patent application.[46]

¶29 Courts do not always apply the plain and ordinary meaning to claim terms. If the disclosure provides specific definitions, the court will apply those definitions to the claim terms.[47] However, patentees are limited in their ability to be their own lexicographer. For instance, they cannot disclaim definitions or prior art from the claims.[48] Further, the court must always construe the claims in light of the prosecution history and prior art. Accordingly, courts will not construe claims to mean something that the PTO rejected or the patentee eliminated through amendments during patent prosecution.[49]

¶30 If ambiguity persists after applying these techniques, the Federal Circuit has indicated that courts can rely on extrinsic evidence, such as technical dictionaries or expert testimony.[50] If a claim is still unclear after a court applies all of the above claim construction rules, it should construe the claim so as to be valid if possible.[51] Doing so usually results in the court applying a narrow claim construction.

¶31 Patent litigation is notoriously costly; some studies estimate that the median cost is as much as $4 million for a case in which the stakes are between $1 million and $25 million.[52] A portion of this cost is attributable to time spent on claim construction.[53] To prepare for the *Markman* hearing at which the court considers evidence and arguments that it uses to construe the claims, the patentee will spend time carefully reviewing all prior art in order to propose a construction that avoids the prior art and encompasses the accused product.

¶32 The defendant will also review the prosecution history to determine what interpretations the patentee has disclaimed. In addition, the defendant will review the prior art in order to propose a construction that encompasses the prior art and avoids the accused product.[54] The *Markman* hearing and resulting claim construction ruling by the court is the most important part of most cases.[55]

¶33 After the court issues a claim construction ruling, the parties must proceed based on that ruling. Since claim construction is a legal question,[56] the Federal Circuit reviews a district court's claim construction de novo with no deference given to the lower court's factual findings.[57] If, as happens in a substantial percentage of all reported appeals, the Federal Circuit reverses the district court based on the claim construction ruling,[58] the

(2005).

[45] Phillips v. AWH Corp., 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc).

[46] *See id*. at 1325.

[47] *See id.* at 1315–16, 1319.

[48] *See id*. at 1316.

[49] *See* Microsoft Corp. v. Multi-Tech Sys., Inc., 357 F.3d 1340, 1350 (Fed. Cir. 2004).

[50] *See Phillips*, 415 F.3d at 1317–18.

[51] *See id*. at 1327.

[52] *See* Miller, *supra* note 38, at 198.

[53] *See* Lee Petherbridge, *Positive Examination*, 46 IDEA 173, 186–87 (2006).

[54] *See generally* Gretchen Ann Bender, *Uncertainty and Unpredictability in Patent Litigation: The Time Is Ripe for a Consistent Claim Construction Methodology*, 8 J. INTELL. PROP. L. 175, 210–11 (2001).

[55] *See* Lemley, *supra* note 44, at 101–02.

[56] *See* Markman v. Westview Instruments, Inc., 517 U.S. 370, 388-89 (1996).

[57] *See* Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc).

[58] *See* Kimberly A. Moore, Markman *Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 239 (2005).

parties must repeat all of their trial preparation and, perhaps, even the trial. This is, at least in part, attributable to differing claim construction[59] standards and can substantially increase litigation costs.

2. Patent Trolls

¶34 The ambiguity of patent claims has contributed to the emergence of patent trolls. This group, often referred to as "non-practicing entities," acquires patents with no intention of practicing the invention.[60] Instead, the troll simply waits for a manufacturer to sufficiently commercialize a product that could arguably read on the troll's patent and then seeks to extract exorbitant licensing fees.[61] Patent trolls thrive in conditions where they can easily acquire bad patents, patent litigation costs are extremely high, and the risk to a defendant of losing a patent suit is potentially crippling.[62] As a result, U.S. companies face a plethora of patent suits brought by plaintiffs with arguably substandard patents.[63] In fact, a Boston University study has revealed that patent trolls have cost U.S. innovators $500 billion in lost wealth from 1990 to 2010.[64]

¶35 The mere threat of litigation can be a powerful tool for the patent troll to force licensing or settlement agreements from profitable manufacturers that cannot afford to stop production of the potentially infringing device or process.[65] Consequently, the settlement or licensing fee is often extremely high, even when the asserted patent most likely would not read on the innovator's device or process.[66] Trolls can then use the fees obtained through licensing agreements to create a steady cash inflow to fund future legal threats. In this way, patent trolls create a disincentive to innovate and stifle research and development.[67]

¶36 Claim drafting reform would diminish the harmful effect of patent trolls on the patent system in at least two ways. First, clearly defined claims allow third parties to more accurately determine the patent scope. Presently, manufacturers sued by patent trolls have the option of settling a potentially meritless claim or continuing through the costly and uncertain nature of patent litigation and claim construction. Parties opt for settlement when they are both uncertain of the asserted claim scope and of how the court

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[59] *See, e.g.*, Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 377–78 (2000).

[60] Gene Quinn, *In Search of a Definition for the Term "Patent Troll"*, IPWATCHDOG (July 18, 2010, 11:46 PM), http://ipwatchdog.com/2010/07/18/definition-patent-troll/id=11700/.

[61] *See* Damien Myers, *Reeling in the Patent Troll: Was* eBay v. MercExchange *Enough?*, 14 J. INTELL. PROP. L. 333 (2007).

[62] Gerard N. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809, 1812 (2007).

[63] *See, e.g.*, Joe Brennan et al., *Patent Trolls in the U.S., Japan, Taiwan and Europe*, 13 CASRIP Newsletter (Center for Advanced Study & Research on Intellectual Property, Seattle, Wash.), Spring/Summer 2006, http://www.law.washington.edu/Casrip/Newsletter/default.aspx?year=2006&article=newsv13i2BrennanEtAl.

[64] Karan Dhadialla, *Patent Trolls Under the Patent Reform Act*, BERKELEY TECH. L.J. BOLT (Oct. 15, 2011), http://btlj.org/2011/10/15/patent-trolls-under-the-patent-reform-act/.

[65] *E.g.*, Myers, *supra* note 61, at 334.

[66] *Id.* at 335.

[67] Rajkumar Vaikhari, Note, *The Effect of Patent Trolls on Innovation: A Multi-Jurisdictional Approach*, 1 INDIAN J. OF INTELL. PROP. L. 64, 67 (2008), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1320553&rec=1&srcabs=1314374.

will construe the claims. Rather than entering a lengthy and expensive litigation process in which they have little guidance as to how a court will construe the asserted claims, manufacturers enter settlement agreements with the trolls.

¶37 Manufacturers, then, are entering settlement agreements because they are cheaper than litigation costs and because the court could construe the claims broadly to hold the manufacturers liable for infringement. Thus, trolls are using the manufacturer's uncertainty as to how a court will interpret a needlessly ambiguous claim and fear of exorbitant litigation costs to extort settlement agreements. More clearly defined claims would significantly limit a troll's ability to extort funds from manufacturers because both manufacturers and courts would be able to identify a single patent scope. If the manufacturer's device or process reads on that scope, then he will likely opt for settlement. If, in the more likely case, the troll is asserting a patent that does not read on the manufacturer's device or process, the manufacturer can proceed through litigation and claim construction with confidence that the court will apply the same meaning to the claim terms and rule in the manufacturer's favor.

¶38 Secondly, more clearly defined claims will reduce the time courts spend in claim construction. An attenuated claim construction period leads to reduced litigation costs. With litigation costs diminished, a major concern for manufacturers faced with infringement suits from trolls is eliminated. Currently, however, the manufacturer might still be tempted to accept a settlement agreement if it requires the manufacturer to pay far less than it would in litigation, even if the manufacturer is confident that the court will rule in its favor. Reduced litigation costs through clearly defined claims incentivize manufacturers to challenge the troll's meritless claims through litigation rather than accepting unfavorable settlements.

¶39 This is not to say that more clearly defined claims would eliminate the troll's presence in the patent landscape altogether. Rather, regulations requiring applicants to draft clearly defined claims would limit the troll's harmful impact on the patent system. Unfortunately, the America Invents Act did not address the claim drafting reform necessary to fix our nation's patent system.

III. AMERICA INVENTS ACT

¶40 In an effort to overhaul the flawed patent system, Congress passed, and the President signed into law, the America Invents Act.[68] Congress has wrestled with this Act since 2005 to address issues in both patent prosecution and litigation. As described in greater detail below, the Act changes the filing system at the PTO, institutes new procedures for challenging patents, and creates a new fee collection structure for applications at the PTO.[69] Although the America Invents Act makes beneficial changes to the U.S. patent system, it does not reach the root of the problem at the claim drafting level.

¶41 Most notably, the America Invents Act moves U.S. patent law away from a "first-to-invent" system. Under this system, the courts and PTO granted patent rights to the first party to conceive of and reduce to practice the invention. Even if one party filed for

[68] Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 6, 125 Stat. 284, 299 (2011).
[69] *Id.*

a patent before another, the latter would be entitled to the patent rights if he could prove that he was the first to conceive of the invention. If the two parties disputed who was the first to conceive of the invention, the parties would present evidence in court or interference proceedings.

¶42 For patent applications having an effective filing date on or after March 16, 2013, conception and reduction to practice are no longer relevant in patentability analysis. Instead, the U.S. will follow the system more consistently applied internationally—the "first-to-file" system.[70] This eliminates the need to hold interference or court proceedings to determine which inventor independently conceived of their invention within a span of a few weeks or months. The first-to-file system should therefore reduce both litigation costs and patent examination time. However, while the new rule is more straightforward than the first-to-invent rule, some argue it favors big businesses that have the money and lawyers to quickly file for patents over small businesses and entrepreneurs.[71] Still, the change is the most significant in the America Invents Act, and one that will at least moderately improve the U.S. patent system.

¶43 The Act also provides new ways for third parties to challenge bad patents through pre-issuance submissions[72] and post-grant review.[73] Pre-issuance submissions will allow third parties to provide the PTO with potentially invalidating prior art, but only while a patent application is pending.[74] Post-grant review will allow a third party to present legal challenges to a patent to the PTO, but only in the first nine months after the patent issues.[75] Both processes should have the intended effect of minimizing the number of bad patents the PTO issues without depleting judicial resources.

¶44 To take advantage of these changes, however, parties must constantly monitor the activity of the PTO. Critics argue that such legislation once again benefits big business with the resources to monitor activity within the PTO and only provides more jobs for patent attorneys rather than entrepreneurs.[76] Therefore, though pre-issuance submissions and post-grant review offer new avenues to challenge bad patents, they are unlikely to make serious improvement to the patent system unless the general public becomes more cognizant of the PTO's inner workings.

¶45 Many have argued that the best way to improve the quality of patents issued by the PTO is for Congress to provide more funding to the PTO to hire more examiners.[77] By hiring more examiners, the PTO could to reduce its application backlog. Currently, Congress controls the PTO's budget and sets its fees.[78] The America Invents Act, however, enables the PTO to set its own fees in an effort to improve its patent

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[70] *Id.* § 3.

[71] *See, e.g.*, Brad Plumer, *Everything You Need to Know About Patent Reform in One Post*, WASH. POST, Sept. 26, 2011, 5:30 PM, http://www.washingtonpost.com/blogs/wonkblog/post/everything-you-need-to-know-about-patent-reform-in-one-post/2011/09/06/gIQAOD4V7J_blog.html.

[72] Leahy-Smith America Invents Act § 8.

[73] *Id.* § 6.

[74] *Id.* § 8.

[75] *Id.* § 6.

[76] Timothy B. Lee, *Mostly Pointless Patent Reform Bill Goes to Obama for Signature*, ARS TECHNICA (Sept. 8, 2011, 4:48 PM), http://arstechnica.com/tech-policy/news/2011/09/mostly-pointless-patent-reform-bill-goes-to-obama-for-signature.ars.

[77] *See, e.g.*, Allen E. Hoover, *Let's Run the PTO as a Business*, 14 INTELL. PROP. TODAY 12, 27 (2007).

[78] *See, e.g.*, 35 U.S.C. § 41 (2006).

examination process.[79] However, Congress will continue to have some budgetary power and be able to appropriate funds that the PTO will place in escrow.[80] For this reason, critics question how much the Act will actually increase funding at the PTO to overhaul IT and hire more examiners.

¶46 The America Invents Act failed to address other areas of the patent system. The Act does nothing to limit patent damages by aligning them with any actual value of a patented invention. Similarly, patent trolls are not deterred from extorting more funds from innovators and manufacturers. Furthermore, although the Act makes beneficial changes to improve the patent system, it does so peripherally, without reaching the root of the problem: claim-drafting regulation.

IV. PROPOSED SOLUTION

A. Implementation

¶47 This paper makes a simple proposal to improve many flaws of the U.S. patent system. Inventors applying for a patent with the PTO should be required to submit a claim chart included in their application. This procedural alteration would enhance a third party's understanding of the invention's scope in a much more timely fashion than the present system. The change will improve patent examination quality at the PTO and reduce litigation costs spent in claim construction.

¶48 Parties generally draft claim charts in litigation to argue their position that a device or process does or does not infringe on the asserted claims. Therefore, the plaintiff will provide a broad definition of the claims in order to persuade the court that the defendant has infringed on the claim. Conversely, the defendant will provide a narrow interpretation to avoid infringement. Instead of courts continuing this time-consuming practice of requiring competing claim charts to determine an ex post definition of the claims, they should require the claim chart and associated definitions within the patent itself.

¶49 The claim chart included within the application would provide great benefits for patent examiners and those who must interpret the claims. As an example, consider U.S. Patent No. 7,269,636 (see *infra* Appendix). Claim 1 reads:

> A method of operating a computer network to add function to a Web page comprising:
>
> > downloading said Web page at a processor platform, said downloading step being performed by a Web browser;
> >
> > when said Web page is downloaded, automatically executing a first code module embedded in said Web page;
> >
> > said first code module issuing a first command to retrieve a second code module;

[79] Leahy-Smith America Invents Act § 10.
[80] *Id.*

> assembling in response to said issuing operation, said second code module having a service response;
>
> said first code module issuing a second command to initiate execution of said second code module; and
>
> initiating execution of said second code module at said processor platform in response to said second command.[81]

¶50 This is the first of 29 claims that will legally define the patent scope. However, without more, it is almost impossible for a third party to determine the invention's scope from the language in Claim 1. To do so, the third party would have to meticulously examine the twenty pages of support in the highly technical specification. This would most likely require multiple readings of the specification while noting where each claim term is defined or described.

¶51 Claim 1 is not necessarily a poorly written claim, and its ambiguity is certainly not an anomaly in claim drafting. Patent drafting is a difficult process. It is a great skill for one to be able to transform each of the invention's features into words. Furthermore, as described earlier, those drafting the claims must balance the interests of using language narrow enough to avoid rejection by the PTO and broad enough to protect the inventor's intellectual property rights and ability to sue infringers. Claim 1 has achieved both goals. The patent has been issued and the claim's language is ambiguous and broad enough for the patentee to assert it against third parties performing a wide variety of processes.

¶52 Now, consider the proposed claim chart below, tying each of Claim 1's limitations to its definition within the specification, along with an example of the limitation:

TABLE 1.

CLAIM 1	SPECIFIC DEFINITION	EXAMPLE	PRIOR ART (OPTIONAL)
A method of operating a computer network to add function to a Web page comprising	"function, such as streaming media or other media services" – col. 5, l. 38-40 See Fig. 4 (111)	A method for adding to a web page, like Yahoo.com, a pop-up that looks like a radio and plays streaming music	U.S. Patent No. 5,796,952 – also includes a method within a computer network adding different functions to a web page col. 2, l. 40-45
downloading said Web page at a processor platform, said	"Second processor platform 24 includes a CPU 40, a memory 42, input/output lines 44, an input device 46, such as a	Yahoo.com is downloaded by Internet Explorer at a personal	U.S. Patent No. 5,796,952 – web browser downloads a

[81] U.S. Patent No. 7,269,636 (filed July 1, 2003).

downloading step being performed by a Web browser	keyboard or mouse, a display device 48, such as a display terminal, and speakers 50." – col. 4, l. 9-12 See Fig. 1 (24) "Web browser 52 is software which navigates a web of interconnected documents on the World Wide Web via Internet 28." – col. 4, lines 23-25 See Fig. 1 (52)	computer	web page at client col. 5, l. 12-16
when said Web page is downloaded, automatically executing a first code module embedded in said Web page	"First code module 36 executes enough functionality to act as a "bootstrap loader" in order to load second code module 90" – col. 5, l. 9-11 See Fig. 1 (36) and Fig. 2	When Yahoo.com is downloaded at the personal computer a piece of code within Yahoo.com is executed to load a second piece of code	N/A
said first code module issuing a first command to retrieve a second code module	"A first command line (LINE NO. 1) 92 contains an exemplary initialization for a first command 93, i.e., a script, that will activate a Web address 94 for contacting server system 26 (FIG. 1) and call CGI program 84 into execution. In addition, first command line 92 communicates Web address 38 to server system 26 via a network connection 96 (FIG. 1) over Internet 28…CGI program 84 initiates the downloading of second code module 90 to a second processor platform." – col. 5, l. 14-24 See Fig. 2 (92, 93, 94)	The first piece of code within Yahoo.com loads the second piece of code by issuing command	N/A
assembling in response to	"Task 144 causes processor 62 (FIG. 2) to form a service	Once the command to	N/A

said issuing operation, said second code module having a service response	response indicating a denial of service. In a preferred embodiment, a desired service response is media appliance metaphor 111 functioning to provide streaming media, in this case music, along with Web page 34. However, with respect to task 144, the service response indicating denial of service may be the media appliance metaphor 111 having a slash through it. Alternatively, the service response may simply be an absence of any media appliance metaphor." – col. 7, l. 60 – col. 8, l. 1 See Fig. 11 (111)	retrieve the second piece of code is issued, the second piece of code is assembled to include the radio graphic for Yahoo.com	
said first code module issuing a second command to initiate execution of said second code module	"Fourth command line 104 contains a second command 106 that initiates execution of second code module 90 that was downloaded to temporary memory 54 of second processor platform 24." – col. 5, l. 30-35 See Fig. 2 (104)	The first piece of code within Yahoo.com issues a second command to initiate execution of the second piece of code	N/A
initiating execution of said second code module at said processor platform in response to said second command	See Fig. 3 (246, 248)	The second piece of code is executed and the radio graphic is displayed on Yahoo.com at the personal computer in response to the second command to initiate execution	N/A

¶53 As seen above, the first column displays Claim 1, with claim limitations separated by rows. The second column serves dual purposes—it provides support for the limitations in the specification and, more importantly, defines certain claim terms using the specification. Notice that not all terms from column 1 are defined in column 2. Only

those terms for which the applicant was the lexicographer are defined. All other terms should be given their plain and ordinary meaning.

¶54 Take the limitation recited in row 1 as an example. The limitation is "A method of operating a computer network to add function to a Web page comprising." The only term in this limitation that is described in the specification beyond its plain and ordinary meaning is "function." Therefore, the definition from the specification for "function" is quoted verbatim in column 2. Further, the inventor cites the quotation by column and line number to allow claim chart readers to quickly locate the definition in the specification.

¶55 The second column also cites relevant figures representing the claim limitation. This is another aid to help readers more quickly ascertain the claim's scope. A representative figure may not always be available, but when one exists, the inventor should similarly cite it in the claim chart. Looking again at row 1, the citation reads "See Fig. 4 (111)," meaning element 111 within Figure 4.

¶56 The first two columns are fairly standard for claim charts. Most claim charts separate claim limitations in a manner similar to column 1. Column 2 generally recites a portion of a specification that one can interpret to read on the claim limitation. However, the specification in other claim charts is usually one of a prior art reference used to invalidate the patent. The proposed claim chart, instead, cites the asserted patent's specification.

¶57 The final two columns are unique to the proposed claim chart. Column 3 provides a "real world" example of the claim limitation. This column's purpose, similar to the first two, is to provide the reader with a quicker, more thorough understanding of the claim. The example provided for row 1 is "A method for adding to a web page, like Yahoo.com, a pop-up that looks like a radio and plays streaming music." A reader, after reviewing column 3, now has a clear idea of what the first claim limitation was attempting to convey.

¶58 The first claim limitation is not exclusively referring to radio graphics that play streaming music. The scope goes further than that. Therefore, examples listed in column 3 of the claim chart *will not* limit the invention's scope. Instead, applicants should recognize that they are simply providing one of the possibly many embodiments of the invention. Still, a real world example of the embodiment described in layman's terms will give the patent reader a quicker understanding of the limitation and the ability to envision similar embodiments.

¶59 Ideally, the PTO will require the claim chart as a section of the application after the "Detailed Description of the Invention" and before the claims. This claim chart would only include the first three columns. However, the PTO could instead require the claim chart to be a separate form that the applicant submits to the PTO. The examiner would then receive the application along with the claim chart form including column 4. If the examiner finds a prior art reference that reads on the claim limitation, then she would cite that portion of the reference in column 4. The applicant would receive the updated claim chart along with, or in lieu of, the Office Action rejecting the application.

¶60 The claim chart above was created for independent Claim 1. In some cases, the dependent claims may be self-explanatory and a separate claim chart for each claim may be excessive. Therefore, applicants do not necessarily need to submit charts for all the

claims. Rather, the PTO could require claim charts for all independent claims and make them optional for dependent claims.

B. Benefits

¶61 Compare Claim 1 alone with the sample claim chart, and the benefit to this paper's proposal becomes apparent. Third parties reviewing the claim for the first time will more quickly understand its scope after reading the claim chart. After reading the claim alone, a third party would have no clue what the inventor meant by "function" or "service response," for example. The reader could gain an understanding of the claim by reviewing the specification and drawings. However, this is an arduous, time-consuming process. The claim chart does the work for the reader so he can quickly and easily access definitions and examples of the claim terms.

¶62 Employing the claim chart within the patent application should be a minor modification for the patent applicant. A patent applicant is already required to support each claim element in the specification. However, currently, applicants have very lax regulations for tying their claim terms to the specification. So, applicants or their attorneys can draft very long and dense specifications and use ambiguous terms in the claims that third parties could reasonably interpret in a variety of ways from the specification. This is especially beneficial when the PTO construes the claims narrowly, thereby avoiding prior art rejection, and the patentee then asserts the claims in an infringement suit as broadly as possible.

¶63 Although prosecution history estoppel prevents applicants from limiting claim scope in prosecution and then expanding it in litigation, the estoppel only applies when the applicant expressly limited the scope in prosecution.[82] If the patent examiner reviewing the application interprets the claims narrowly, prosecution history estoppel does not apply. Examiners are taught to give claim terms their "broadest reasonable interpretation," but given the ambiguity of the claim terms in view of the specification, examiners overlook prior art references that can be used to reject a broad claim. Certainly, the examiners' stringent time constraint makes it even more difficult to review the application and search for relevant prior art references to reject it in an Office Action. The PTO and U.S. government should recognize the PTO's internal flaws and adapt claim-drafting regulation to ease the PTO's burden.

¶64 The claim chart forces the applicant to define the claim terms with clarity. An applicant's focus will no longer be on the narrow/broad art of claim drafting. Ambiguous claim terms will lose their ability to transform between prosecution and litigation. Instead, claims will be easily understandable, and patents will be granted on their merits. Applicants may still be their own lexicographers, but the new terms must be defined in the claim chart. Otherwise, they will be given their plain and ordinary meaning.

¶65 The claim chart's benefit to patent examiners is tremendous. With less than eighteen hours on average to examine an application, it is unreasonable to expect a patent examiner to review and understand entire applications, let alone to find the most pertinent prior art. The time the examiner saves by reviewing the claim chart and the clarity he gains from the chart's definitions and examples provide him with extra valuable hours to

[82] *See* Phillips v. AWH Corp., 415 F.3d 1303, 1317–18 (Fed Cir. 2005) (en banc).

search relevant prior art that might be used to reject the claims. This results in the PTO issuing fewer bad patents.

¶66 With fewer bad patents in the market, needless patent suits will be diminished. This is particularly true for patent trolls. Patent trolls thrive in conditions in which litigation is lengthy and expensive and in which they can essentially gamble on the chance that the court will construe ambiguous claim terms in their favor for exorbitant damages recovery. Trolls use these conditions to extort settlements from manufacturers.

¶67 The proposed claim chart adjusts these conditions by removing the claims' ambiguity. This has the positive benefit of reducing litigation, or more specifically claim construction, and the associated litigation costs. Further, the manufacturer's concern that the courts may read the claims broadly enough to encompass the alleged infringement is eliminated because all relevant parties will have the single patent scope at their convenience within the claim chart. Consequently, the proposed claim chart reduces the troll's incentive to threaten bad faith litigation in an attempt to extort settlement agreements.

¶68 This paper's proposal will drastically reduce the preparation time, and associated attorney's fees, for *Markman* hearings because parties will no longer need to provide their own claim charts. Rather than spending months submitting competing claim charts to the court and to one another, the parties will simply refer to the claim chart presented in the patent. The court will then define each limitation as it is listed in column 2 of the chart. If the patentee did not include a definition in the chart, the court will give the limitation its plain and ordinary meaning.

¶69 The proposal does not eliminate the court's need for *Markman* hearings. Instead, the proposal reduces litigants' preparation time and the hearing's length, which can be up to six months.[83] Parties in litigation will not need to pay fees as their attorneys draft charts in an attempt to identify the most beneficial claim construction. The proposal provides the courts and all other interested parties with the claim construction. Parties will now use patent litigation, as they should, arguing that the defendant's device or process does or does not read on the asserted claims, not arguing what those claims mean.

¶70 As previously discussed, the claim chart will be a tremendous aid for examiners reviewing patent applications at the PTO. This, in turn, will reduce the number of bad patents that the PTO issues. Nevertheless, the PTO will still issue a number of patents on which a prior art reference already reads. When plaintiffs assert these patents in infringement suits, the defendants often counter with invalidity contentions.

¶71 Through invalidity contentions, defendants compare each limitation of the asserted claims to the prior art to show why the claims are invalid. Just as the proposed chart aids the court in its claim construction, it further aids the court in its invalidity analysis. Specifically, in cases in which the prior art reference is a patent or published application, the court can compare the claim charts within those references with the claim chart included with the asserted patent to determine whether it should invalidate the claims. Currently, both parties submit their own claim charts in litigation to argue whether the prior art reference reads on the asserted claims. However, the proposed claim chart will, once again, provide the court with an unbiased, previously supplied definition of the

[83] Gerald J. Flattmann, Jr., *Anatomy of a Patent Infringement Case*, 825 PLI/PAT 71, 85 (2005).

relevant claim limitations. Accordingly, the proposed claim chart will aid the court in its invalidity analyses.

V. CONCLUSION

¶72 The current regulations that allow patentees to draft malleable claims that can change depending on a party's interest are at the root of the nation's patent system problems. This paper has offered a proposal to reform patent law by requiring patent applicants to clarify their claim limitations. Specifically, the PTO should require applicants to submit a claim chart defining each claim element and to link it to the specification along with a real world example of the claim limitation.

¶73 If implemented, the proposal will drastically improve the PTO's patent examination quality. Rather than scouring the specification for support in understanding the claim terms, the examiner can quickly determine the metes and bounds of the invention. Therefore, examiners can spend less time reviewing each application and make a significant dent in the current backlog. Furthermore, a quicker understanding of the claims allows examiners to spend more time searching for relevant prior art—time that they would have before spent interpreting the claims.

¶74 Similarly, the proposal will diminish patent litigation costs because courts will have to spend less time in claim construction. The America Invents Act addressed many areas of patent law in need of reform. However, these changes failed to address the greatest problem with our nation's patent law—the claims. This paper's proposal offers tremendous improvements to U.S. patent law at almost negligible cost.

APPENDIX

US007269636B2

(12) **United States Patent**
McCollum et al.

(10) **Patent No.: US 7,269,636 B2**
(45) **Date of Patent: *Sep. 11, 2007**

(54) **METHOD AND CODE MODULE FOR ADDING FUNCTION TO A WEB PAGE**

(75) Inventors: **Charles P. McCollum**, Phoenix, AZ (US); **Andrew L. Burgess, Jr.**, Desert Hills, AZ (US)

(73) Assignee: **Modavox, Inc.**, Phoenix, AZ (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 721 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **10/612,480**

(22) Filed: **Jul. 1, 2003**

(65) **Prior Publication Data**

US 2004/0006605 A1 Jan. 8, 2004

Related U.S. Application Data

(63) Continuation of application No. 09/429,357, filed on Oct. 28, 1999, now Pat. No. 6,549,691.

(51) **Int. Cl.**
G06F 15/16 (2006.01)
G06F 15/173 (2006.01)

(52) **U.S. Cl.** **709/218**; 709/203; 709/217; 709/219; 709/223; 709/224; 709/225; 709/227; 709/228; 709/229

(58) **Field of Classification Search** 709/203, 709/217, 218, 219, 223, 224, 225, 227, 228, 709/229

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,796,952 A * 8/1998 Davis et al. 709/224
5,845,075 A 12/1998 Uhler et al.
5,903,727 A 5/1999 Nielsen
6,009,410 A 12/1999 LeMole et al.
6,112,240 A 8/2000 Pogue et al.
6,128,655 A 10/2000 Fields et al.
6,212,564 B1 4/2001 Harter et al.
6,317,761 B1 11/2001 Landsman et al.
6,327,609 B1 12/2001 Ludewig et al.
6,401,134 B1 6/2002 Razavi et al.
6,415,319 B1 7/2002 Ambroziak
2005/0108626 A1 * 5/2005 Ong 715/511

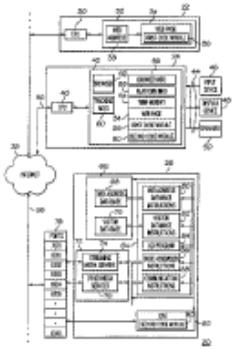
* cited by examiner

Primary Examiner—Nathan J. Flynn
Assistant Examiner—Ashok Patel
(74) *Attorney, Agent, or Firm*—Jordan M. Meschkow; Lowell W. Gresham; Charlene R. Jacobsen

(57) **ABSTRACT**

A computer network (**20**) includes a first processor (**22**) for maintaining a Web page (**34**) having an embedded first code module (**36**) and accessible through a Web address (**38**). A second processor (**24**) supports a Web browser (**52**) for downloading the Web page (**34**) and executing the first code module (**36**). When executed, the first code module (**36**) issues a first command (**93**) to retrieve a second code module (**90**) from a server system (**26**). The server system (**26**) includes a database (**68**) having a service response (**162**, **176**, **186**) associated with the Web address (**38**). A processor (**62**) assembles the second code module (**90**) having the service response (**162**, **176**, **186**). When the second code module is retrieved, the first code module (**36**) issues a second command (**106**) to initiate execution of the second code module (**90**) to provide added function to the Web page (**34**).

29 Claims, 11 Drawing Sheets



U.S. Patent Sep. 11, 2007 Sheet 1 of 11 US 7,269,636 B2

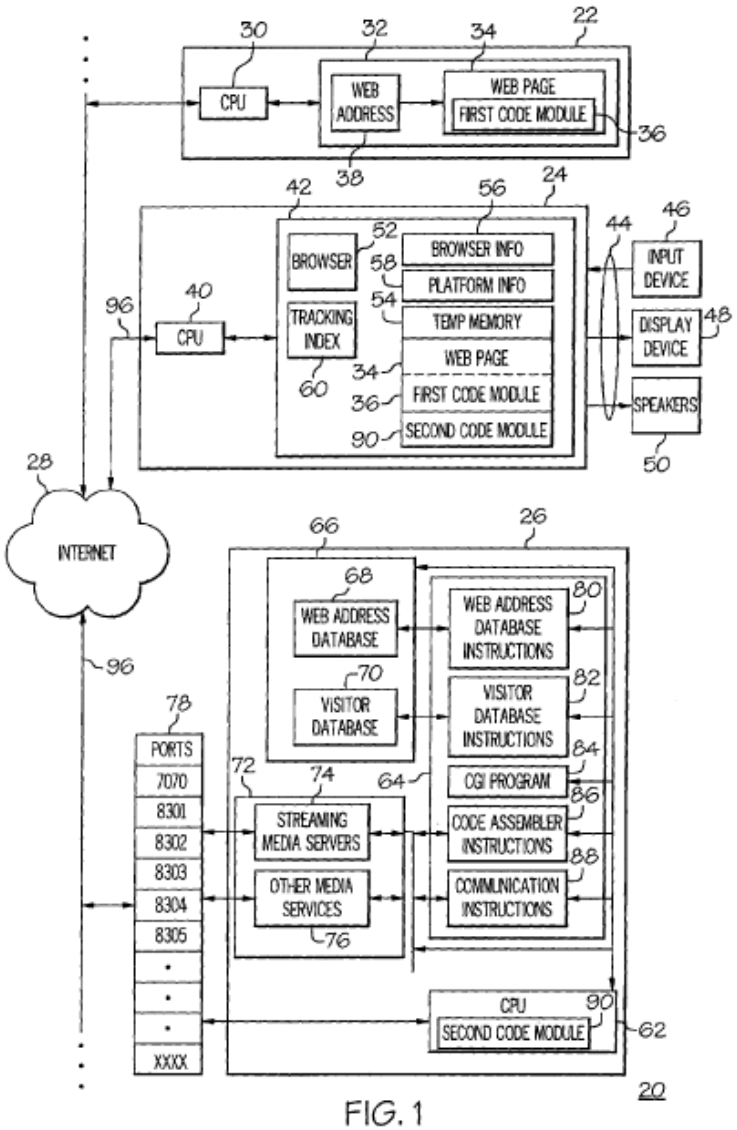


FIG. 1

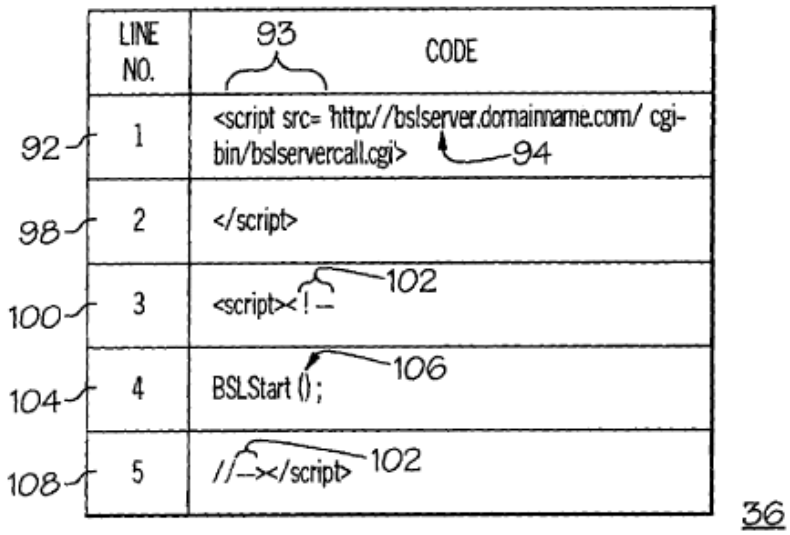

LINE NO.
93
CODE
92
1
<script src= 'http://bslserver.domainname.com/ cgi-bin/bslservercall.cgi'>
94
98
2
</script>
100
3
<script><!--
102
104
4
BSLStart ();
106
108
5
//--></script>
102
36

FIG. 2

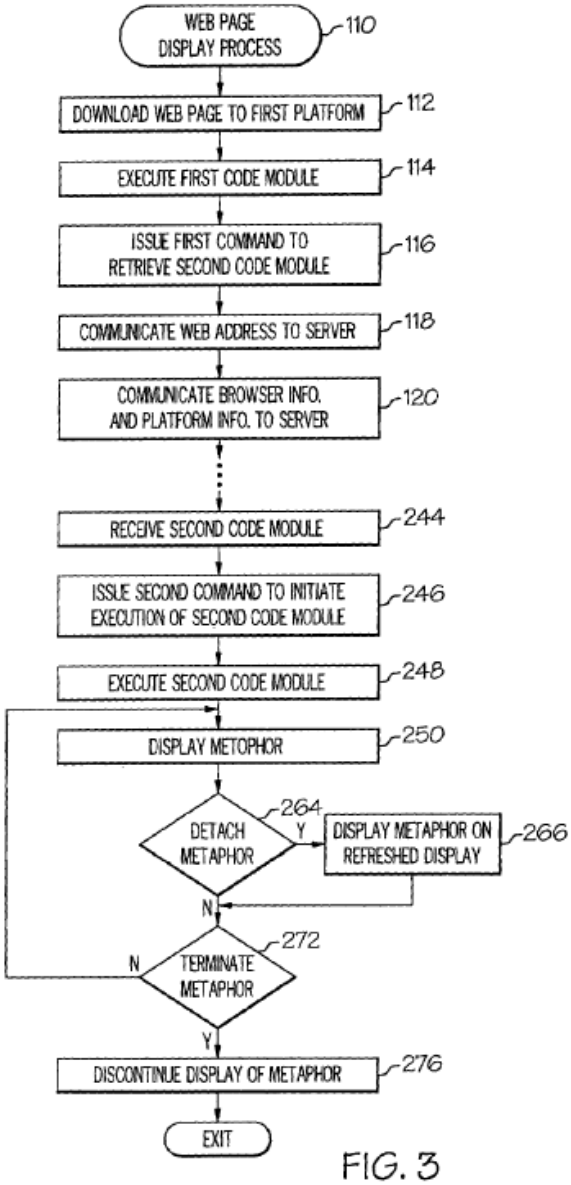

WEB PAGE DISPLAY PROCESS
110
DOWNLOAD WEB PAGE TO FIRST PLATFORM
112
EXECUTE FIRST CODE MODULE
114
ISSUE FIRST COMMAND TO RETRIEVE SECOND CODE MODULE
116
COMMUNICATE WEB ADDRESS TO SERVER
118
COMMUNICATE BROWSER INFO. AND PLATFORM INFO. TO SERVER
120
RECEIVE SECOND CODE MODULE
244
ISSUE SECOND COMMAND TO INITIATE EXECUTION OF SECOND CODE MODULE
246
EXECUTE SECOND CODE MODULE
248
DISPLAY METOPHOR
250
DETACH METAPHOR
264
Y
DISPLAY METAPHOR ON REFRESHED DISPLAY
266
N
TERMINATE METAPHOR
272
N
Y
DISCONTINUE DISPLAY OF METAPHOR
276
EXIT

FIG. 3

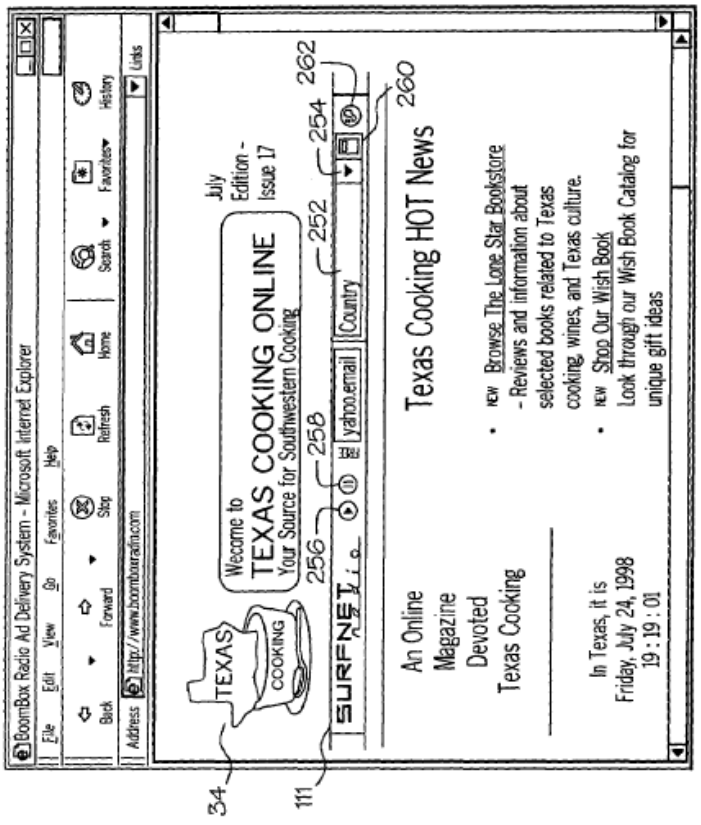

BoomBox Radio Ad Delivery System - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites History
Address http://www.boomboxradio.com
Links
TEXAS
COOKING
Welcome to
TEXAS COOKING ONLINE
Your Source for Southwestern Cooking
July
Edition -
Issue 17
SURFNET
yahoo.email
Country
An Online
Magazine
Devoted
Texas Cooking
Texas Cooking HOT News
NEW Browse The Lone Star Bookstore
- Reviews and information about
selected books related to Texas
cooking, wines, and Texas culture.
NEW Shop Our Wish Book
Look through our Wish Book Catalog for
unique gift ideas
In Texas, it is
Friday, July 24, 1998
19 : 19 : 01
34
111
256
258
252
254
262
260

FIG. 4 48

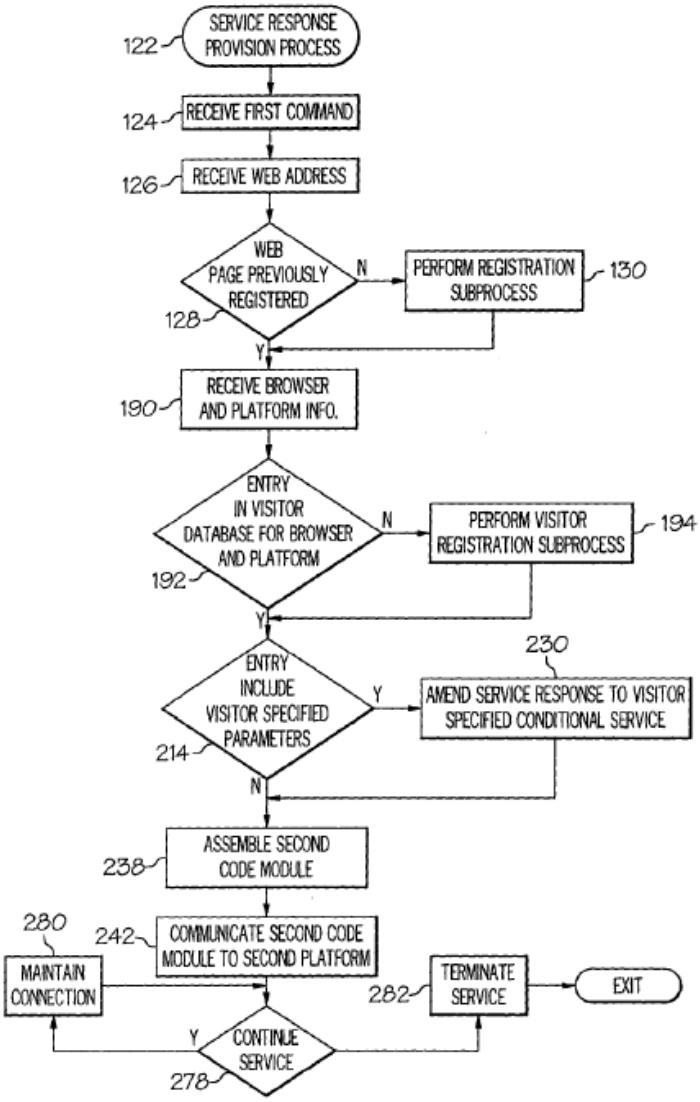

SERVICE RESPONSE PROVISION PROCESS
122
RECEIVE FIRST COMMAND
124
RECEIVE WEB ADDRESS
126
WEB PAGE PREVIOUSLY REGISTERED
128
N
PERFORM REGISTRATION SUBPROCESS
130
Y
RECEIVE BROWSER AND PLATFORM INFO.
190
ENTRY IN VISITOR DATABASE FOR BROWSER AND PLATFORM
192
N
PERFORM VISITOR REGISTRATION SUBPROCESS
194
Y
ENTRY INCLUDE VISITOR SPECIFIED PARAMETERS
214
Y
230
AMEND SERVICE RESPONSE TO VISITOR SPECIFIED CONDITIONAL SERVICE
N
ASSEMBLE SECOND CODE MODULE
238
280
242
COMMUNICATE SECOND CODE MODULE TO SECOND PLATFORM
MAINTAIN CONNECTION
282
TERMINATE SERVICE
EXIT
Y
CONTINUE SERVICE
278

FIG. 5

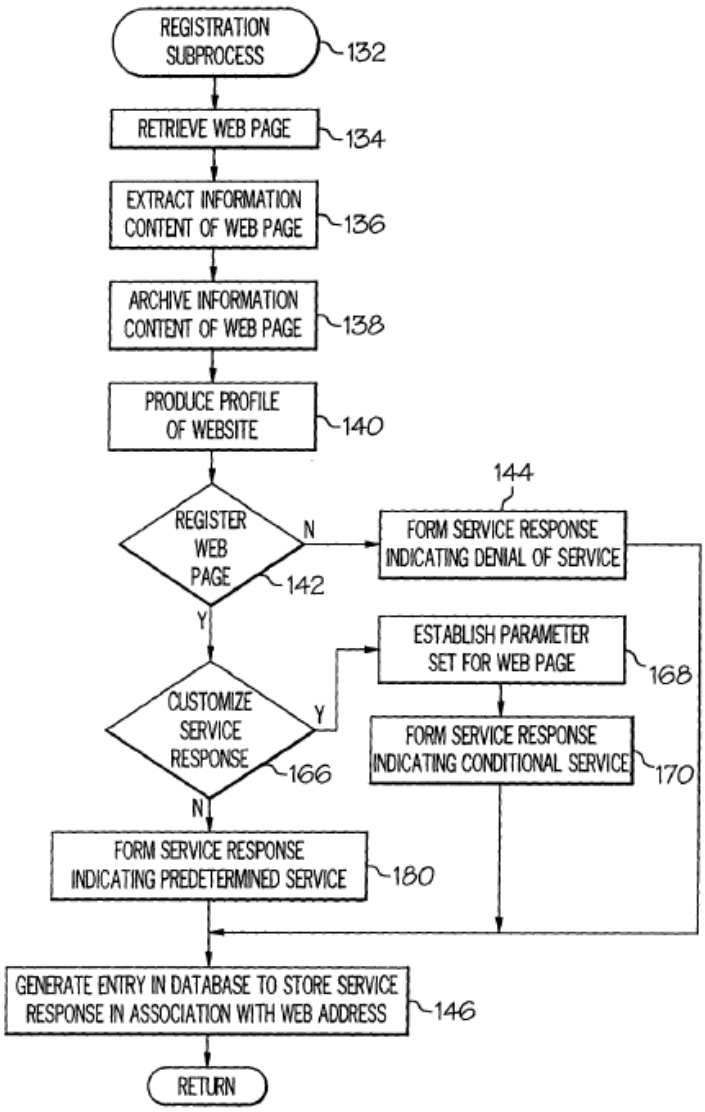

REGISTRATION SUBPROCESS
132
RETRIEVE WEB PAGE
134
EXTRACT INFORMATION CONTENT OF WEB PAGE
136
ARCHIVE INFORMATION CONTENT OF WEB PAGE
138
PRODUCE PROFILE OF WEBSITE
140
144
REGISTER WEB PAGE
142
N
FORM SERVICE RESPONSE INDICATING DENIAL OF SERVICE
Y
ESTABLISH PARAMETER SET FOR WEB PAGE
168
CUSTOMIZE SERVICE RESPONSE
166
Y
FORM SERVICE RESPONSE INDICATING CONDITIONAL SERVICE
170
N
FORM SERVICE RESPONSE INDICATING PREDETERMINED SERVICE
180
GENERATE ENTRY IN DATABASE TO STORE SERVICE RESPONSE IN ASSOCIATION WITH WEB ADDRESS
146
RETURN

FIG. 6

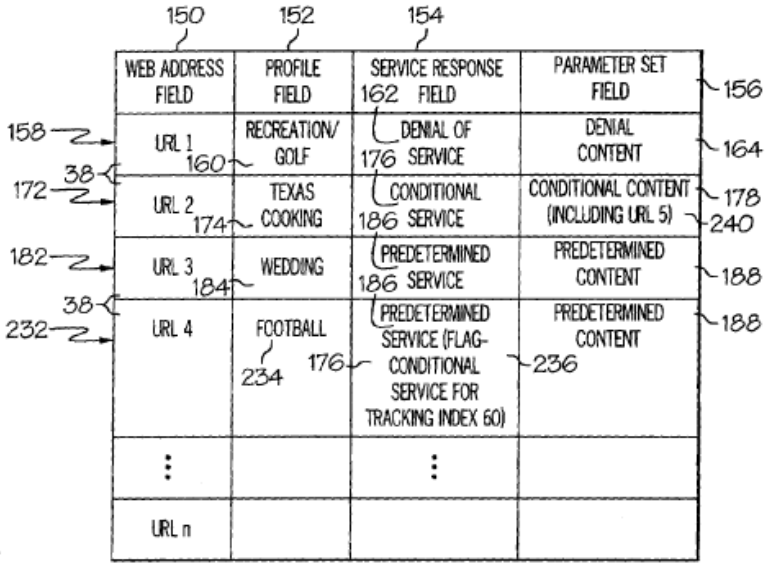

150
152
154
WEB ADDRESS FIELD
PROFILE FIELD
SERVICE RESPONSE FIELD
162
PARAMETER SET FIELD
156
158
URL 1
160
RECREATION/ GOLF
DENIAL OF SERVICE
176
DENIAL CONTENT
164
38
172
URL 2
174
TEXAS COOKING
CONDITIONAL SERVICE
186
CONDITIONAL CONTENT (INCLUDING URL 5)
178
240
182
URL 3
184
WEDDING
PREDETERMINED SERVICE
186
PREDETERMINED CONTENT
188
38
232
URL 4
FOOTBALL
234
176
PREDETERMINED SERVICE (FLAG-CONDITIONAL SERVICE FOR TRACKING INDEX 60)
236
PREDETERMINED CONTENT
188
URL n
68

FIG. 7

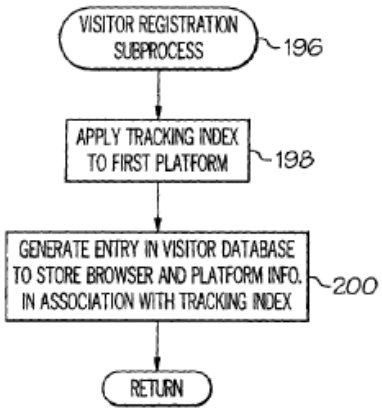

VISITOR REGISTRATION SUBPROCESS
196
APPLY TRACKING INDEX TO FIRST PLATFORM
198
GENERATE ENTRY IN VISITOR DATABASE TO STORE BROWSER AND PLATFORM INFO. IN ASSOCIATION WITH TRACKING INDEX
200
RETURN

FIG. 8

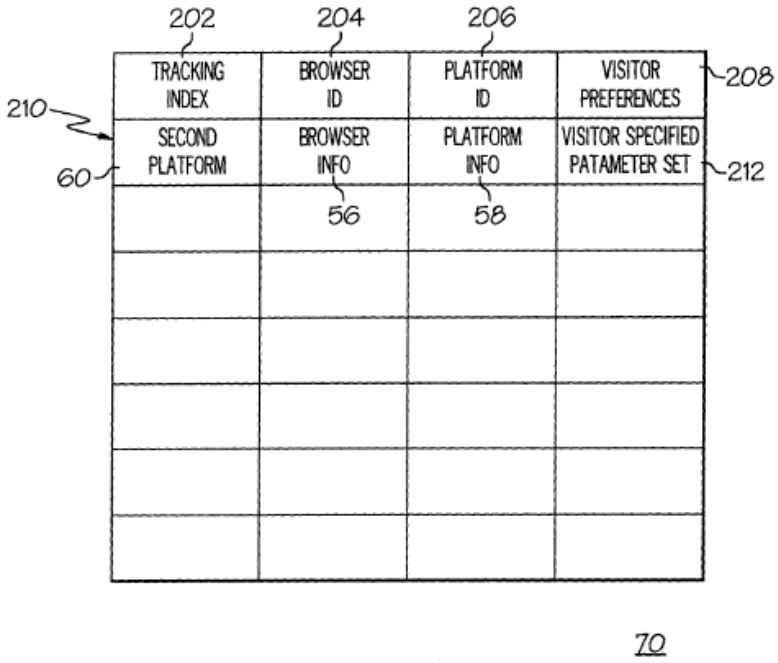

202
204
206
TRACKING INDEX
BROWSER ID
PLATFORM ID
VISITOR PREFERENCES
208
210
SECOND PLATFORM
BROWSER INFO
PLATFORM INFO
VISITOR SPECIFIED PATAMETER SET
212
60
56
58
70

FIG. 9

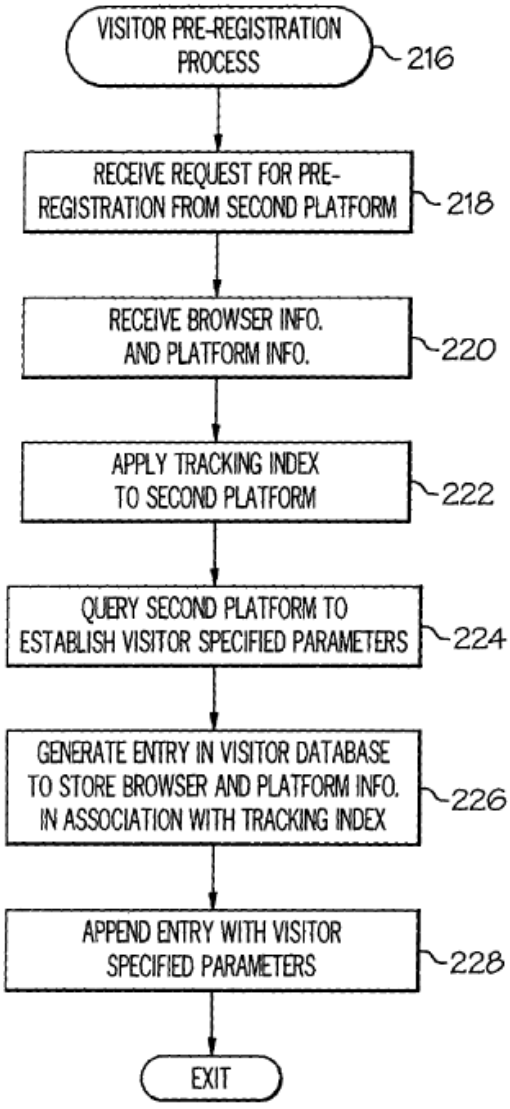

VISITOR PRE-REGISTRATION PROCESS
216
RECEIVE REQUEST FOR PRE-REGISTRATION FROM SECOND PLATFORM
218
RECEIVE BROWSER INFO. AND PLATFORM INFO.
220
APPLY TRACKING INDEX TO SECOND PLATFORM
222
QUERY SECOND PLATFORM TO ESTABLISH VISITOR SPECIFIED PARAMETERS
224
GENERATE ENTRY IN VISITOR DATABASE TO STORE BROWSER AND PLATFORM INFO. IN ASSOCIATION WITH TRACKING INDEX
226
APPEND ENTRY WITH VISITOR SPECIFIED PARAMETERS
228
EXIT

FIG. 10

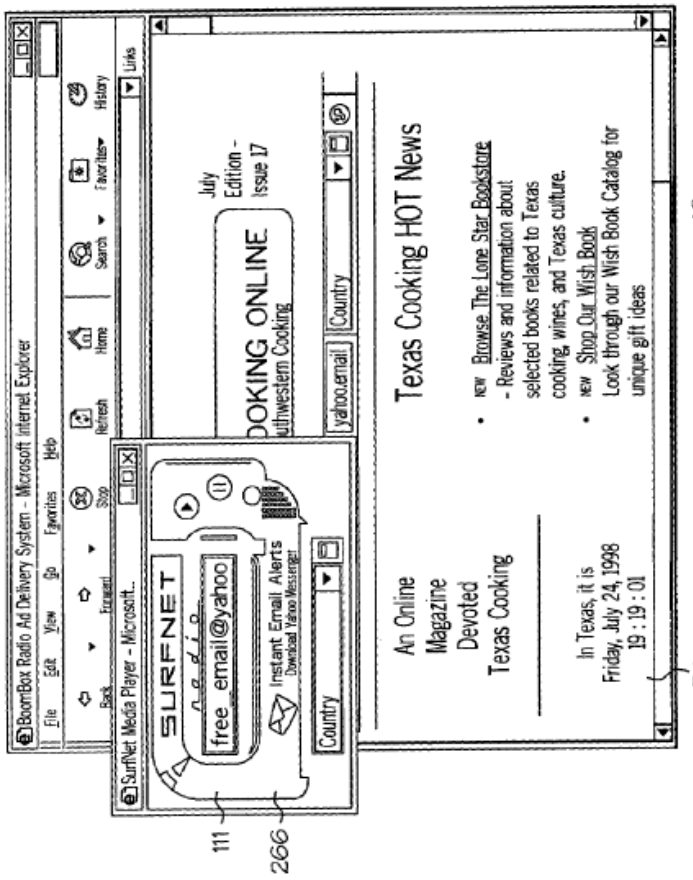

BoomBox Radio Ad Delivery System - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites History
Links
SurfNet Media Player - Microsoft...
SURFNET
free email@yahoo
Instant Email Alerts
Download Yahoo Messenger
Country
DOKING ONLINE
uthwestern Cooking
July
Edition -
Issue 17
yahoo.email
Country
Texas Cooking HOT News
An Online
Magazine
Devoted
Texas Cooking
NEW Browse The Lone Star Bookstore
- Reviews and information about
selected books related to Texas
cooking, wines, and Texas culture.
NEW Shop Our Wish Book
Look through our Wish Book Catalog for
unique gift ideas
In Texas, it is
Friday, July 24, 1998
19 : 19 : 01
111
266
34
48

FIG. 11

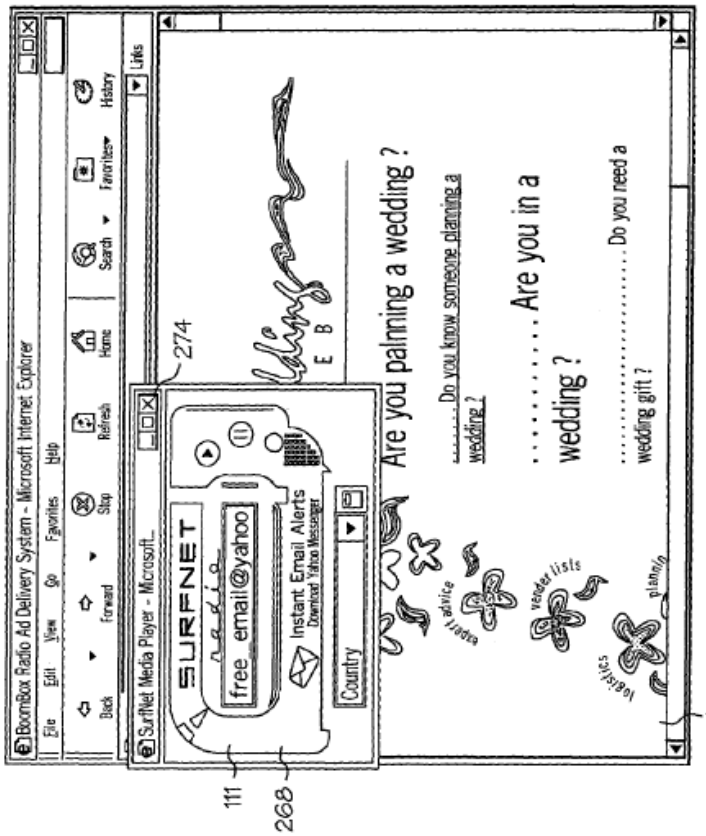

BoomBox Radio Ad Delivery System - Microsoft Internet Explorer
SurfNet Media Player - Microsoft
SURFNET
free email@yahoo
Instant Email Alerts
Country
Are you palnning a wedding ?
Do you know someone planning a wedding ?
Are you in a wedding ?
Do you need a wedding gift ?
274
270
268
111

FIG. 12

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METHOD AND CODE MODULE FOR ADDING FUNCTION TO A WEB PAGE

RELATED INVENTION

The present invention is a continuation of "Method And System For Adding Function To A Web Page," U.S. patent application Ser. No. 09/429,357, filed 28 Oct. 1999, now U.S. Pat. No. 6,594,691 which is incorporated by reference herein.

TECHNICAL FIELD OF THE INVENTION

The present invention relates to the field of computer networks. More specifically, the present invention relates to methods and systems for adding function to Web pages that are accessible through the Internet.

BACKGROUND OF THE INVENTION

The worldwide network of computers commonly referred to as the "Internet" has seen explosive growth in the last several years. The Internet is expected to evolve with the adaptation of new forms of interactive technology applied to the basic Internet infrastructure which consists of many elements, not the least of which are the Web browser and Web page.

Groups of Web pages, forming Web sites, are evolving to a high level of sophistication at an staggering rate. Small to large corporations are taking advantage of this trend, and electronic commerce (E-Commerce), that is, business transactions taking place over the Internet is advancing at a rapid pace. It is highly desirable for those who would like to carry out commerce on the Internet to have a very sophisticated Web site that can perform numerous functions and services to an increasingly sophisticated class of Web site visitors. Such Web sites may desirably include such information services as searchable databases for price, stock, shipping, etc.; product information; competitive comparisons, and so forth.

In order for such information services to be successfully communicated to potential customers, it is imperative to garner the interest of large numbers of Internet users. As with more traditional forms of commerce, advertising plays an important role in attracting customers. Accordingly, what is needed is economical, yet effective, advertising and publicity in order to attract the interest of Internet users.

A recent advance in Web site technology is the addition of streaming media, as well as other more sophisticated functional enhancements, to Web sites. The concept of streaming media is defined broadly as audio and video being delivered to a Web site visitor in packets over the Internet. The streaming media can be delivered so quickly that audio sounds and/or graphic images can be heard and seen almost immediately, comparable in quality to commercial, over-the-air radio or television. Some examples of streaming media include banners, informational feeds using a "marquee", audio based commercials, and so forth.

Unfortunately, it is expensive to add such enhancements to Web sites. Bandwidth costs for delivering streaming media may be prohibitively expensive. In addition, there are problems associated with the complexity of producing the streaming media that is to be "broadcast" over the Web sites, and licensing of the streaming media if it is proprietary.

A typical example of adding function to a Web site is the addition of an "affiliate" program. An affiliate program, provided by a third party may be desired by the Web site

developer to add functionality to their Web site for the purpose of enhancing the appeal of the site or for revenue sharing in which they will receive a percentage of sales. In order to obtain such an affiliate program, the Web site developer may be required to register with the supplier of the affiliate program in order to obtain and execute the affiliate program in connection with his/her Web site. Unfortunately, such a registration process typically requires the Web site developer to fill out lengthy on-line electronic forms. Such forms may be cumbersome and so frustrating, that filling out such forms leads to their abandonment on the part of the Web site developer. If the Web site developer successfully manages to register, the Web site developer must then wait for the implementing code for the affiliate program to be e-mailed to him/her. Once the Web site developer receives the implementing code, the code is then copied and pasted onto the HyperText Markup Language (HTML) for the Web site where desired.

Unfortunately, universal capability with the Web browsers that subsequently access the Web site with the enhanced function provided by the affiliate program is limited. That is, even though a Web site developer has successfully added the implementing code for the affiliate program, all Web browsers accessing the Web site may not be able to interpret the affiliate program and the Web site visitor may not be able to experience the added function.

SUMMARY OF THE INVENTION

Accordingly, it is an advantage of the present invention that a method and system for adding function to a Web page are provided.

It is another advantage of the present invention that a method and system are provided that are compatible with Web browsers which adhere to the standards for HyperText Transfer Protocol (HTTP).

It is another advantage of the present invention that a method and system are provided that add function to a Web page through an easily distributed software code module.

It is yet another advantage of the present invention that a method and system are provided that deliver services by client demand that are specific to predetermined parameters.

The above and other advantages of the present invention are carried out in one form by a method of operating a computer network to add function to a Web page. The method calls for downloading the Web page at a processor platform. When the Web page is downloaded, automatically executing a first code module embedded in the Web page. The first code module issues a first command to retrieve a second code module, via a network connection, from a server system, and the first code module issues a second command to initiate execution of the second code module at the processor platform.

The above and other advantages of the present invention are carried out in another form by a computer readable code module for adding function to a Web page. The code module is configured to be embedded in the Web page which is generated in a HyperText Markup Language (HTML), and is configured for automatic execution when the Web page is downloaded to a client machine supporting a graphical user interface and a Web browser. The computer readable code module includes means for communicating a Web address of the Web page to a server system via a network connection to initiate a download of a second computer readable code module to the client machine. The computer readable code module further includes means for communicating first information characterizing said Web browser to said server

and means for communicating second information characterizing said client machine to said server. In addition, the computer readable code module includes means for initiating execution of said second computer readable code module following the download of the second computer readable code module and means for providing a comment tag informing the Web browser to ignore the initiating means.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the present invention may be derived by referring to the detailed description and claims when considered in connection with the Figures, wherein like reference numbers refer to similar items throughout the Figures, and:

FIG. **1** shows a block diagram of a computer network in accordance with a preferred embodiment of the present invention;

FIG. **2** shows an exemplary computer readable code module in accordance with the preferred embodiment of the present invention;

FIG. **3** shows a flow chart of a Web page display process.

FIG. **4** shows an electronic display presenting a Web page including a media appliance metaphor;

FIG. **5** shows a flow chart of a service response provision process;

FIG. **6** shows a registration subprocess of the service response provision process;

FIG. **7** shows a Web address database generated by a server system of the computer network;

FIG. **8** shows a visitor registration subprocess of the service response provision process;

FIG. **9** shows a visitor database generated by the server system of the computer network;

FIG. **10** shows a visitor pre-registration process performed prior to the Web page display process of FIG. **3**;

FIG. **11** shows the electronic display presenting the media appliance metaphor detached from the Web page; and

FIG. **12** shows the electronic display presenting another Web page including the media appliance metaphor.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. **1** shows a block diagram of a computer network **20** in accordance with a preferred embodiment of the present invention. Computer network **20** includes a first processor platform **22**, a second processor platform **24**, and a server system **26**. First processor platform **22**, second processor platform **24**, and server system **26** are connected together via a network **28**. In a preferred embodiment, network **28** is the Internet. However, network **28** can also represent a LAN, a WAN, a wireless cellular network, or a combination of a wireline and wireless cellular network. It should be readily apparent to those skilled in the art that computer network **20** also includes many more processors and server systems which are not shown for the sake of clarity.

First processor platform **22** includes a central processing unit (CPU) **30** and a memory **32**. Memory **32** includes a Web page **34** in which a first code module **36** is embedded. A Web address **38** in memory **32** is associated with Web page **34**. In a preferred embodiment, Web page **34** is generated in HyperText Markup Language (HTML). HTML is the authoring software language used on the Internet's World Wide Web for creating Web pages.

Web address **38** is a Universal Resource Locator (URL), or a string expression used to locate Web page **34** via network **28**. It should be readily apparent to those skilled in the art that first processor platform **22** also includes additional components such as input/output lines, a keyboard and/or mouse, and a display terminal which are not shown for the sake of clarity. In addition, memory **32** also contains additional information, such as application programs, operating systems, data, etc., which also are not shown for the sake of clarity.

Second processor platform **24** includes a CPU **40**, a memory **42**, input/output lines **44**, an input device **46**, such as a keyboard or mouse, a display device **48**, such as a display terminal, and speakers **50**. Memory **42** includes Web browser software **52** and a temporary memory **54**. A first portion of memory **42** is designated for browser information (BROWSER INFO.) **56**, and a second portion of memory **42** is designated for platform information (PLATFORM INFO.) **58**. In addition, a third portion of memory **42** is designated for a tracking index **60**, or cookie, which will be discussed in detail below. Those skilled in the art will understand that memory **42** also contains additional information, such as application programs, operating systems, data, etc., which are not shown in FIG. **1** for the sake of clarity.

Web browser **52** is software which navigates a web of interconnected documents on the World Wide Web via Internet **28**. When a Web site, such as Web page **34**, is accessed through Web address **38**, Web browser **52** moves a copy of Web page **34** into temporary memory **54**. Web browser **52** uses HyperText Transfer Protocol (HTTP) for communicating over Internet **28**. In a preferred embodiment, Web browser **52** supports the HyperText Markup Language 1.0 and the Javascript 1.0 standards, such as Netscape 2.0 and above, Internet Explorer 3.0, and above, and the like.

Browser information **56** is information specific to Web browser **52**. Browser information **56** includes, for example, make and version of Web browser **52**, what plug-ins are currently present, and so forth. Platform information **58** is information specific to second processor platform **24**. Platform information **58** includes, for example, make and version of platform **24**, make and version of the operating system operating on platform **24**, and so forth.

Server system **26** includes a processor (CPU) **62**, a memory **64**, a database structure **66** having a Web address database **68** and a visitor database **70**, and a server structure **72** for accommodating streaming media servers **74** and other media servers **76**. Ports **78** are in communication with server structure **72** and Internet **28** and are used by the Transmission Control Protocol/Internet Protocol (TCP/IP) transport protocol for providing communication across interconnected networks, between computers with diverse hardware architectures, and with various operating systems.

Memory **64** includes Web address database instructions **80**, visitor database instructions **82**, a common gateway interface program **84**, code assembler instructions **86**, and communication instructions **88**. Web address database instructions **80** are executed by processor **62** for maintaining and accessing Web address database **68**. Likewise, visitor database instructions **82** are executed by processor **62** for maintaining and accessing visitor database **70**. CGI interface program **84** executes functions at server system **26** including among other things, checking if Web site **34** is registered. Code assembler instructions **86** are executed by processor **62** to assemble a second code module **90** which is subsequently communicated to second processor platform **24** through the execution of CGI interface program **84** and communication instructions **88**. Second code module **90** is communicated from ports **78** over Internet **28** and downloaded to temporary memory **54** at second processor platform **24**.

FIG. **2** shows an example format of first code module **36** in accordance with the preferred embodiment of the present invention. First code module **36** is generated in HTML and embedded in the HTML of Web page **34** (FIG. **1**) when a Web page developer designs Web page **34**. In a preferred embodiment, first code module **36** is generally distributable. That is, first code module **36** may be distributed via Internet **28**, and copied and pasted into a Web page during Web page development. First code module **36** executes enough functionality to act as a "bootstrap loader" in order to load second code module **90** (FIG. **1**) into temporary memory **54** (FIG. **1**) of second processor platform **24** (FIG. **1**) for subsequent execution.

A first command line (LINE NO. **1**) **92** contains an exemplary initialization for a first command **93**, i.e., a script, that will activate a Web address **94** for contacting server system **26** (FIG. **1**) and calls CGI program **84** into execution. In addition, first command line **92** communicates Web address **38** to server system **26** via a network connection **96** (FIG. **1**) over Internet **28**. CGI program **84** executes multiple functions at server system **26**. For example, CGI program **84** checks to see whether or not Web page **34** is registered. In addition CGI program **84** initiates the downloading of second code module **90** to second processor platform **24**. A second command line (LINE NO. **2**) **98** terminates the script started in first command line **92**.

A third command line (LINE NO. **3**) **100** starts a new script. Third command line **100** also contains a comment tag **102** used to allow Web browser **52** to ignore a fourth command line (LINE NO. **4**) **104**. Fourth command line **104** contains a second command **106** that initiates execution of second code module **90** that was downloaded to temporary memory **54** of second processor platform **24**. A fifth command line **108** terminates comment tag **102** and terminates the script begun on third command line **100**.

FIG. **3** shows a flow chart of a Web page display process **110**. Web page display process **110** is performed by second processor platform **24** to add function, such as streaming media or other media services to Web page **34** when downloaded to second processor platform **24**.

With reference to FIG. **4**, FIG. **4** shows display device **48** (FIG. **1**) presenting Web page **34** with added function, namely with the added function of a media appliance metaphor **111** in response to the activities carried out in connection with Web page display process **110**.

Media appliance metaphor **111** is a software device that exists in the realm of electronic communication and has a counterpart in the real world. When displayed with Web page **34** on display device **48** of second processor platform **24**, media appliance metaphor **111** is a graphic representation of something that looks and behaves like a media appliance. In the exemplary embodiment, media appliance metaphor **111** represents a radio image. Other examples of media appliance metaphors include television images, computer images, computer game toy images, and so forth. When applied to Web page **34**, media appliance metaphor **111** gives the visitor to Web page **34** the impression that they already know how to use the device because it looks and acts like something that they are already familiar with.

Metaphors take any form desired for which practical programming constraints can be met. This includes, but is not limited to interactive video games, network games, network information appliances such as web based telephones or call centers, and notification service appliances, like beepers. First code module **36** (FIG. **1**) used to apply the metaphor on a Web page is a universal program interface, and acts as a bootstrap loader capable of retrieving and executing programs suitable for such a purpose.

Although the present invention is described in connection with the presentation of media appliance metaphor **111** as applied to Web page **34**, it need not be limited to such a media appliance metaphor. Rather, first code module **36** (FIG. **2**) can be embedded in a Web page to be executed by a visiting processor platform in order to execute other code modules not associated with media appliance metaphors.

With reference back to FIG. **3**, Web page display process **110** begins with a task **112**. Task **112** causes Web browser **52** to download Web page **34** at second processor platform **24**. In other words, Web browser **52** moves a copy of Web page **34**, with the embedded first code module **36** into temporary memory **54** (FIG. **1**) of second processor platform **24**.

When Web page **34** is downloaded at second processor platform **24** in task **112**, a task **114** is performed. Task **114** causes Web browser **52** to automatically execute first code module **36** embedded in Web page **34**, a copy of which is now stored in temporary memory **54**.

Following task **114**, a task **116** is performed. At task **116**, first code module **36** executes first command line **92** (FIG. **2**) to retrieve second code module **90** by issuing first command **93** to activate Web address **94**, contact server system **26** (FIG. **1**), and call CGI program **84** into execution.

A task **118** is performed in connection with task **116**. Task **118** causes second processor platform **24** to communicate Web address **38** to server system **26** through the execution of first command line **92**, as discussed previously.

Next, a task **120** is performed. Like task **118**, task **120** causes second processor platform **24** to communicate browser information **56** (FIG. **1**) and platform information **58** (FIG. **1**), through the execution of first command line **92**, to server system **26**. Following task **120**, second processor platform **24** performs additional activities (not shown) pertinent to the downloading and presentation of Web page **34** on display device **48** (FIG. **1**). Furthermore, as indicated by ellipses following task **120**, and relevant to display process **110**, second processor platform **24** awaits communication from server system **26** before display process **110** can proceed.

FIG. **5** shows a flow chart of a service response provision process **122** performed by server system **26** (FIG. **1**) in response to display process **110** (FIG. **3**). Process **122** begins with a task **124**. Task **124** causes processor **62** (FIG. **1**) of server system **26** to receive first command **93** (FIG. **3**).

In response to receipt of first command **93** in task **124**, a task **126** is performed. At task **126**, server system **26** receives Web address **38** communicated by second processor platform **24** at task **118** (FIG. **3**) of display process **110** (FIG. **3**).

Following task **126**, a query task **128** is performed. At query task **128**, server system **26** determines if Web page **34** located by Web address **38** is previously registered. That is, processor **62** executes a portion of Web address database instructions **80** to access Web address database **68** in order to locate an entry in Web address database **68** corresponding to Web address **38**.

When processor **62** determines that there is no entry in Web Address database **68** for Web address **38**, process **122** proceeds to a task **130**. Task **130** causes processor **62** of server system **26** to perform a registration subprocess.

FIG. **6** shows a registration subprocess **132** performed in response to task **130** of service response provision process **122** (FIG. **4**). Registration subprocess **132** is performed by server system **26** to register Web page **34** with the controlling entity of server system **26**. In addition, registration

subprocess **132** is performed to determine a service response (discussed below) for Web page **34**.

Registration subprocess **132** is performed automatically the first time that Web page **34** is downloaded at a processor platform. Desirably, registration subprocess **132** is invoked immediately following the design of Web page **34** by a Web page developer. For example, following the design of Web page **34**, the Web page developer may download Web page **34** at a processor platform to review the graphical, textual, and audio content of Web page **34** before Web page **34** becomes generally accessible by visitors.

When query task **128** determines that there is no entry in Web address database **68** for Web address **38** (FIG. **1**), server system **26** may schedule a time to perform registration subprocess **132**. Alternatively, registration subprocess **132** may be performed at task **130** (FIG. **4**) immediately upon acknowledgment that there is no entry in Web address database **68** (FIG. **1**).

Registration subprocess **132** begins with a task **134**. Task **134** causes server system **26** (FIG. **1**) to retrieve Web page **34**. Task **134** may also causes server system **26** to retrieve Web pages (not shown) that are nested in association with Web page **34**.

In response to task **134**, a task **136** is performed. Task **136** causes processor **62** of server system **26** execute a portion of Web address database instructions **80** to extract information content of Web page **34**. The information content of Web page **34** is derived from all characters and words that are written on Web page **34**, and that are publicly accessible. The information content may then be reduced by extracting informational metatags, or HTML tags, embedded in Web page **34** that are used to specify information about Web page **34**. In particular, the "keyword" and "description" metatags usually contain words and description information that accurately describe Web page **34**. Other informational content which may be extracted are links, other URLs, domain names, domain name extensions (such as .com, .edu., .jp, .uk, etc.), and so forth.

Following task **136**, a task **138** is performed. Task **138** causes processor **62** to archive the information content described in connection with task **136**.

In response to extraction task **136** and archival task **138**, a task **140** is performed. Task **140** causes processor **62** (FIG. **1**) executing Web address database instructions **80** to produce a particular "signature" or profile of Web page **34**. This profile is important for determining the nature of the interest by a visitor using second processor platform **24** to display Web page **34** from whence the profile is produced in order to perform a service response (discussed below) related to the profile.

Following task **140**, a query task **142** is performed. Query task **142** determines whether or not Web page **34** can be registered. Processor **62** (FIG. **1**) may determine that Web page **34** cannot be registered if the information content of Web page **34** is objectionable or otherwise unacceptable to be displayed with added function, i.e., media appliance metaphor **111** (FIG. **4**). When query task **142** determines that Web page **34** is not to be registered, subprocess **132** proceeds to a task **144**.

Task **144** causes processor **62** (FIG. **2**) to form a service response indicating a denial of service. In a preferred embodiment, a desired service response is media appliance metaphor **111** functioning to provide streaming media, in this case music, along with Web page **34**. However, with respect to task **144**, the service response indicating denial of service may be the media appliance metaphor **111** having a slash through it. Alternatively, the service response may simply be an absence of any media appliance metaphor. Following task **144**, subprocess **132** proceeds to a task **146**.

Referring to FIG. **7** in connection with task **146**, FIG. **7** shows Web address database **68** of server system **26** (FIG. **1**). Web address database **68** includes as a minimum, a Web address field **150**, a Web page profile field **152**, a service response field **154**, and a parameter set field **156**. Task **146** (FIG. **6**) causes processor **62** (FIG. **1**) to generate an entry, for example, a first exemplary entry **158**, in Web address database **68**. Web address field **150** is designated for a Web address, or URL. Profile field **152** contains the profile of the Web address produced in task **140** (FIG. **6**) of registration subprocess **132**. Service response field **154** is designated for a service response, and parameter set field **156** is designated for parameters used to assemble second code module **90** having the desired service response.

First entry **158** generated in response to-task **144** (FIG. **6**) includes Web address **38** identified simply as URL **1** in Web address field **150**, a profile **160** in profile field **152** associated with URL **1** indicates Web page **34** as being directed toward RECREATION/GOLF. A service response **162** related to profile **160** indicating a denial of service is stored in service response field **154** for entry **158**, and a denial content parameter set **164** associated with service response **162** are used to form an audible, visual, or other presentation of denial service response **162**.

Referring back to query task **142** (FIG. **6**) of registration subprocess **132**, when query task **142** determines that Web page **34** is registered, subprocess **132** proceeds to a query task **166**. At query task **166**, processor **62** (FIG. **1**) may execute a portion of Web address database instructions **80** to determine if a service response for Web page **34** is to be customized. That is, the Web page developer of Web page **34** has the option of customizing media appliance metaphor **111** (FIG. **4**). Such customization may include, but is not limited to music formats tailored to fit the profile, or personality, of Web page **34**, the appearance of metaphor **111**, the names and formats of the radio channels, the banners that are displayed, the specific type of informational feeds, and so forth.

When processor **62** determines that the service response is to be customized, subprocess **132** proceeds to a task **168**. At task **168**, processor **62** (FIG. **1**) establishes a parameter set for customization of media appliance metaphor **111** to be applied to Web page **34**. The custom metaphor is defined by the parameter set. Establishment of the parameter set may be performed through a query exercise performed between server system **26** and the Web page developer of Web page **34**. Customization can include references to commercials targeted to Web page **34**, custom configuration data, custom Web page metaphor preferences, Web page owner preferences, and so forth.

In response to task **168**, a task **170** is performed. Task **170** causes processor **62** to form a service response indicating conditional service, i.e., presentation of media appliance metaphor **111** that has been customized as a result of the activities associated with task **168**. Following task **170**, registration subprocess **132** proceeds to task **146** for generation of an entry in Web address database **68** (FIG. **7**) to store the service response in association with the Web address.

Referring momentarily to FIG. **7**, Web address database **68** includes a second exemplary entry **172**. Second entry **172** generated in response to task **170** (FIG. **6**) includes a Web address **38** in Web address field **150** identified simply as URL **2**. A profile **174** in profile field **152** associated with URL **2** indicates Web page **34** as being directed toward

TEXAS COOKING. A service response **176** related to profile **174** indicating conditional service is stored in service response field **154** for entry **172**, and a conditional content parameter set **178** associated with conditional service response **176** is used to form an audible, visual, or other presentation of conditional service response **176**.

With reference back to registration subprocess **132** (FIG. **6**), when processor **62** determines at query task **166** the service response is not to be customized, registration subprocess **132** proceeds to a task **180**. Task **180** causes processor **62** to form a service response indicating a predetermined, or default, service. Such a service response is determined by the entity controlling server system **26** (FIG. **1**). In task **180**, the controlling entity can determine the look and feel of media appliance metaphor **111** (FIG. **4**), the particular audio format to be used with media appliance metaphor **111**, for example a particular music type, the controls available to a visitor to Web page **34**, and so forth.

Following task **180**, subprocess **132** proceeds to task **146** where an entry is generated in Web address database **68** (FIG. **7**) to store the service response in association with the web address. Again referring to Web address database **68** (FIG. **7**), Web address database **68** includes a third exemplary entry **182**. Third entry **182**, generated in response to task **180** (FIG. **6**), includes Web address **38** in Web address field **150** identified simply as URL **3**. A profile **184** in profile field **152** associated with URL **3** indicates Web page **34** as being directed toward WEDDING. A service response **186** indicating a predetermined service is stored in service response field **154** for entry **182**, and a predetermined content parameter set **188** associated with service response **186** is used to form an audible, visual, or other presentation of predetermined service response **186**.

Following task **146** and the formation of service response **162** indicating denial of service, the formation of service response **176** indicating conditional service, or the formation of service response **186** indicating predetermined service, Web page **34** is registered, and subprocess **132** exits.

Referring back to service response provision process **122** (FIG. **5**) following task **130** in which registration subprocess **132** (FIG. **6**) has been performed, or when query task **128** determines that Web page **34** (FIG. **1**) identified by Web address **38** (FIG. **1**) has been previously registered, provision process **122** continues with a task **190**.

Task **190** causes processor **62** (FIG. **1**) to receive browser information **56** (FIG. **1**) and platform information **58** (FIG. **1**) from second processor platform **24** (FIG. **1**). As discussed previously, browser information **56** includes, for example, make and version of Web browser **52**, what plug-ins are currently present, and so forth. Platform information **58** includes, for example, make and version of platform **24**, make and version of the operating system operating on platform **24**, and so forth.

In response to task **190**, a query task **192** is performed. Query task **192** causes processor **62** to execute a portion of visitor database instructions **82** (FIG. **1**) to determine if there is an entry in visitor database **70** related to browser information **56** and platform information **58**. When query task **192** determines that there is no entry in visitor database **70**, indicating that a user of second processor platform **24** has not previously downloaded a Web page containing first code module **36**, provision process **122** proceeds to a task **194**.

Task **194** causes processor **62** to further execute visitor database instructions **82** to perform a visitor registration subprocess. FIG. **8** shows a visitor registration subprocess **196** of service response provision process **122**. Visitor registration subprocess **196** is performed for tracking visitors to Web page **34**. Visitor registration subprocess **196** generates visitor database **70** containing visitor demographics and interests that may be useful for targeting advertising and tailoring added function to Web pages.

Visitor registration subprocess **196** begins with a task **198**. Task **198** causes server system **26** (FIG. **1**) to apply tracking index **60** to second processor platform **24** via network connection **96**. Tracking index **60**, also known as a cookie, is a feature of HTTP that allows the entity controlling server system **26** to place information in memory **42** (FIG. **1**) of second processor platform **24**. Tracking index **60** allows server system **26** to both store and retrieve information on second processor platform **24**. Tracking index **60** is persistent, meaning it remains in memory **42** (FIG. **1**) of second processor platform **24** for subsequent use by server system **26**. Since tracking index **60** is persistent, tracking index **60** can be used by server system **26** to track a visitor, using second processor platform **24**, to any Web page that has embedded therein first code module **36**.

In connection with task **198**, a task **200** is performed. Task **200** causes processor **62** (FIG. **1**) to generate an entry in visitor database **70** to store browser information **56** and platform information **58** in association with tracking index **60**. Following task **200**, visitor registration subprocess exits.

FIG. **9** shows visitor database **70** generated by server system **26** of computer network **20**. Visitor database **70** includes as a minimum, a tracking index field **202**, a browser ID field **204**, a platform ID field **206**, and a visitor preferences field **208**. Task **200** (FIG. **8**) causes processor **62** (FIG. **1**) to generate a visitor database entry **210**, in visitor database **70**. Tracking index field **202** is designated for a tracking index, or cookie, such as tracking index **60** identifying second processor platform **24**. Browser ID field **204** contains browser information **56** received in task **190** (FIG. **5**) of provision process **122**. Likewise, platform ID field **206** is designated for platform information **58** received in task **190**. Visitor preferences field **208** is designated for an optional visitor specified parameter set **212** assembled in response to a visitor pre-registration process (discussed below).

Referring back to service response provision process **122** (FIG. **5**), following task **194** in which visitor registration subprocess **196** is performed or when query task **192** determines that entry **210** (FIG. **9**) is present in visitor database **70**, process **122** proceeds to a query task **214**.

Query task **214** determines if entry **210** includes visitor specified parameter set **212**. As mentioned previously, visitor specified parameter set **212** may be present if second processor platform has previously performed a visitor pre-registration process.

FIG. **10** shows a visitor pre-registration process **216** performed prior to invoking Web page display process **110** (FIG. **3**). Visitor pre-registration process **216** may be performed by a user of second processor platform **24** (FIG. **1**) via an access account (not shown). Visitor pre-registration process **216** allows users to have some preference control over any added function, such as media appliance metaphor **111** (FIG. **4**) that they may encounter when downloading Web pages having first code module **36** embedded therein.

Visitor pre-registration process **216** begins with a task **218**. Task **218** causes processor **62** (FIG. **1**) of server system **26** to receive a request (not shown) to pre-register from second processor platform **24**. Such a request may be received over a communication link, such as network connection **96**, via Internet **28**, following the assignment of an access account to second processor platform **24**.

In connection with task **218**, a task **220** is performed. Task **220** causes processor **62** to receive browser information **56**

and platform information **58** from second processor platform **24** via network connection **96**.

Following task **220**, a task **222** is performed. In a manner similar to task **198** of visitor registration process **196** (FIG. **8**), server system **26** applies a tracking index or cookie, such as tracking index **60**, to second processor platform **24**.

Next a task **224** is performed. In task **224**, processor **62** and second processor platform **24** perform an interactive process to obtain visitor specified parameters for establishing visitor specified parameter set **212** (FIG. **9**). Such visitor specified parameters may include, for example, the appearance of specified metaphors, specific audio channels, format preferences, such as location on the Web page, size, color, and so forth.

Following task **224**, a task **226** is performed. Task **226** causes processor **62**, through the execution of visitor database instructions **82** (FIG. **1**), to generate an entry, such as entry **210** (FIG. **9**) in visitor database **70** to store browser information **56** and platform information **58** in association with tracking index **60**.

In addition a task **228** is performed in connection with task **226**. Task **228** causes processor **62**, executing visitor database instructions **82**, to append entry **210** with visitor specified parameter set **212**, as illustrated in visitor database **70** (FIG. **9**). Following task **228**, visitor pre-registration process **216** exits.

Referring back to query task **214** of service response provision process **122** (FIG. **5**), when processor **62** determines that entry **210** (FIG. **9**) includes visitor specified parameter set **212** obtained through the execution of visitor pre-registration process **216** (FIG. **10**), process **122** proceeds to a task **230**.

Task **230** causes processor **62** to access Web address database **68** to amend a service response in service response field **154** (FIG. **7**) to indicate a visitor specified conditional service is to be provided for second processor platform **24**. Referring momentarily to Web address database **68** (FIG. **7**), database **68** includes a fourth exemplary entry **232** for a Web address **38** identified simply as URL **4** in Web address field **150**, a profile **234** in profile field **152** associated with URL **4** indicates Web page **34** as being directed toward FOOTBALL. Service response **186** indicating predetermined service is entered in service response field **154** for fourth entry **232**, and predetermined content set **188** associated with service response **186** is entered in parameter set field **156**.

In response to task **230**, service response field **154** also includes a flag **236** associated with tracking index **60** indicating that predetermined service response **186** is amended to conditional service response **176** for second platform **24**. Flag **236** indicates to processor **62** to access visitor preferences field **208** (FIG. **9**) of visitor database **70** for visitor specified parameter set **212**. Although, fourth exemplary entry **232** is shown having a predetermined service response **186**, it should be readily understood that the service response may be a conditional response **176** (FIG. **7**) in which the Web page designer has customized metaphor **111** (FIG. **4**) during registration subprocess **132** (FIG. **6**).

With reference back to process **122** (FIG. **5**) following task **230** or when query task **214** determines that entry **210** (FIG. **9**) of visitor database **70** does not include visitor specified parameter set **212**, process **122** proceeds to a task **238**.

Task **238** causes processor **62** to execute code assembler instructions **86** (FIG. **1**) to assemble second code module **90**. Second code module **90** is assembled by accessing the predetermined one of denial of service response **162** (FIG. **7**), conditional service response **176** (FIG. **7**), and predetermined service response **186** (FIG. **7**) from Web address database **68**. In addition, second code module **90** is assembled in response to browser information **56** and platform information **58**. In other words, second code module **90** is assembled to include the service response and to work with any combination of browser/platform systems.

This feature eliminates the need for an affiliate program to be hard coded, installed onto Web page **34**, then tested and debugged by programmers. In addition, since second code module **90** is assembled in response to browser information **56**, second code module **90** is compatible with Web browser **52** (FIG. **1**) used by second processor platform **24** (FIG. **1**).

Second code module **90** may also include another Web address **240**, represented in parameter set field **156** of second entry **175** of Web address database **68** (FIG. **7**). In this exemplary scenario, the media source (audio, video, graphics, banners, informational feed, etc.) originates from a platform (not shown) connected through Internet **28** (FIG. **1**) whose location is specified by Web address **240**.

Following assembly of second code module **90** in task **238**, a task **242** is performed by server system **26**. Task **242** causes processor **62** through the execution of CGI program **84** (FIG. **1**), to communicate second code module **90** to second processor platform **24** via network connection **96**. In addition, through the execution of communication instructions **88** (FIG. **1**) and the execution of appropriate command and control protocols, processor **62** manages servers **72** (FIG. **1**) in order to direct information content from the media source having Web address **240** to second processor platform **24**.

Referring to Web page display process **110** (FIG. **3**), display process **110** performs a task **244**. Task **244** is complementary to task **242** of provision process **122**. That is, as server system **26** communicates second code module **90** to second processor platform **24**, task **244** causes platform **24** to receive, via network connection **96** (FIG. **1**), second code module **90**. Second code module is subsequently stored in temporary memory **54** (FIG. **1**) of second processor platform **24**.

Following receipt of second code module **90**, process **110** proceeds to a task **246**. Task **246** causes Web browser **52** (FIG. **1**) to execute third command line **100** (FIG. **2**) of first code module **36** containing comment tag **102**. In addition, task **246** causes Web browser **52** to execute fourth command line **104** (FIG. **2**) of first code module **36** issuing second command **106** to initiate the execution of second code module **90**.

In response to issuing second command **106** in task **246**, a task **248** is performed. Task **248** causes Web browser **52** to execute second code module **90**.

In response to task **248**, a task **250** is performed. Task **250** causes media appliance metaphor **111** (FIG. **4**) to be applied to Web page **34** for display at display device **48** (FIG. **1**). Of course, as discussed previously, if the service response is denial of service response **162**, media appliance metaphor **111** may be presented with a slash through it or may be absent from Web page **34**.

Referring to FIG. **4**, the service response is media appliance metaphor **111** presenting a radio image. Through media appliance metaphor **111**, streaming audio in the form of a radio channel **252** playing country music is provided and presented through speakers **50** (FIG. **1**). Country radio channel **252** enhances the appeal of Web page **34** through an audio experience that compliments Web page **34** whose information content involves Texas Cooking. In connection with music provided through radio channel **252**, commercials may be aired that are related to the information content

of Web page **34**. Such commercials may include content relevant to Texas cooking, for example, food items, antacids, barbecues, and so forth. Thus, metaphor **111** is able to deliver targeted advertising to a visitor accessing Web page **34**.

Metaphor **111** also includes additional controls. For example, a drop down menu **254** is provided for selection of a different radio channel. In addition, a control button **256** allows a user to forward and reverse radio channel **252**, another control button **258** allows a user to play or pause radio channel **252**, and a volume slide **260** allows a user to adjust the volume of radio channel **252**. An arrow image **262** included in metaphor **111** activates a portable mode (discussed below).

In response to the display of metaphor **111** in task **250**, a query task **264** is performed. Query task **264** causes second processor platform **24**, operating through Web browser **52**, to determine if a command is detected to detach metaphor **111** from Web page **34** in order to activate a portable mode. A portable mode may be selected when a user clicks on arrow image **262**. When task **252** determines that the portable mode has been selected process **110** proceeds to a task **266**.

Task **266** causes second processor platform **24** to display metaphor **111**, in a portable mode, on a refreshed display. FIG. **11** shows electronic display **48** presenting media appliance metaphor **111** detached from the Web page **34** and appearing in a portable mode **268**. In an exemplary embodiment, when arrow image **262** is clicked, metaphor **111** changes in appearance to portable mode **268**. This change of appearance may reflect a predetermined response by server system **26** or visitor specified preferences set in visitor pre-registration process **216** (FIG. **10**).

FIG. **12** shows electronic display **48** presenting a new Web page **270** downloaded at second processor platform **24** and including media appliance metaphor **111** in portable mode **268**. Thus, although Web page **34** (FIG. **11**) is no longer being display on electronic display **48**, a user of second processor platform is still able to enjoy the information content supplied by metaphor **111**.

Following task **266** and when query task **264** determines that metaphor **111** is not to be detached from Web page **34**, a query task **272** is performed. Query task **272** determines if display of metaphor **111** is to be terminated. Metaphor **111** may be terminated when a user of second processor platform **24** does not detach metaphor **111** from Web page **34** and downloads a subsequent Web page. In another exemplary scenario, second processor platform **24** may be voluntarily or involuntarily disconnected from server system **26** through the execution of fifth command line **108** (FIG. **2**) of first code module **36** terminating second command **106** (FIG. **2**). In yet another exemplary scenario, metaphor **111** may be terminated when in portable mode **268** by clicking on the close window control, such as an X symbol **274** (FIG. **12**).

When query task **272** determines that metaphor **111** is not to be terminated, program control loops back to task **250** to continue display of metaphor **111**. However, when query task **272** determines that metaphor **111** is to be terminated process **110** proceeds to a task **276**.

Task **276** causes second processor platform **24** to discontinue the display of metaphor **111** on display device **48**. Following task **276**, process **110** exits.

Referring to service response provision process **122** (FIG. **5**), processor **62** (FIG. **1**) of server system **26** performs query task **278**. Query task **278** is complementary to query task **272** of display process **110**. That is, processor **62** monitors for the termination of metaphor **111** in query task **272** and determines at query task **278** whether service should continue.

Communication instructions **88** (FIG. **1**) executed by processor **62** includes a timing parameter, or clock, (not shown) that is started to allow for a continuous periodic check for continuation of service. In query task **278**, when service is to continue, process **122** proceeds to a task **280**. Task **280** causes server system **26**, through the continued execution of communication instructions **88** at processor **62**, to continue directing streaming media associated with metaphor **111** to second processor platform **24**. Following task **280**, process **122** loops back to query task **278** to continue the periodic check for continuation of service.

When query task **278** determines that service is to be discontinued, process **122** proceeds to a task **282**. Task **282** causes server system **26** to terminate services. That is, task **282** causes server system **26** to discontinue directing streaming media associated with metaphor **111** to second processor platform **24**. Following task **282**, process **122** exits.

In summary, the present invention teaches of a method and system for adding function, such as streaming media or other media services to a Web page, through the implementation of a simple code module embedded in the HTML of the Web page. The code module is compatible with Web browsers which adhere to the standards for HyperText Transfer Protocol (HTTP) because it is implemented using a common subset of the current HTML standard command set. In addition, the code module is easily distributed through the Internet, and is readily copied and pasted into a Web page during Web page development activities, and undergoes automatic execution and registration with minimal effort by the Web page developer. The present invention is able to tailor the added function based on information about the Web page in which it is embedded and based on visitor specified preferences.

Although the preferred embodiments of the invention have been illustrated and described in detail, it will be readily apparent to those skilled in the art that various modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims. The specification and drawings are, accordingly, to be regarded in an illustrative rather than restrictive sense. Furthermore, although the present invention is described in connection with a media appliance metaphor for providing streaming audio, this is not intended to be limiting. For example, the metaphor may providing streaming video and other multimedia communication formats.

What is claimed is:

1. A method of operating a computer network to add function to a Web page comprising:

downloading said Web page at a processor platform, said downloading step being performed by a Web browser;

when said Web page is downloaded, automatically executing a first code module embedded in said Web page;

said first code module issuing a first command to retrieve a second code module;

assembling, in response to said issuing operation, said second code module having a service response;

said first code module issuing a second command to initiate execution of said second code module; and

initiating execution of said second code module at said processor platform in response to said second command.

2. A method as claimed in claim 1 wherein said first code module issues said first command to retrieve said second code module from a server system via a network connection.

3. A method as claimed in claim 1 wherein said assembling operation is performed at a server system, and said method further comprises downloading said second code module to said processor platform.

4. A method as claimed in claim 1 wherein said Web browser employs HyperText Transfer Protocol (HTTP), said first code module and said Web page are generated in a HyperText Markup Language (HTML), and said first code module includes a comment tag informing said Web browser to ignore said second command.

5. A method as claimed in claim 1 wherein said method further comprises:

receiving, at a server system, a Web address of said Web page;

determining if said Web page is registered with said server system; and

when said Web page is not registered, performing a registration of said Web page.

6. A method as claimed in claim 5 wherein said performing operation comprises:

receiving said Web page at said server system;

extracting informational content of said Web page;

archiving said informational content of said Web page; and

producing a profile of said Web page in response to said extracting and archiving steps.

7. A method as claimed in claim 6 wherein said service response is related to said profile of said Web page, and said method further comprises:

storing said service response in association with said Web address; and

accessing said service response when said first code module issues said command so that said service response is included in said second code module.

8. A method as claimed in claim 1 wherein said service response is one of a denial of service indication, a conditional service indication, and a predetermined service.

9. A method as claimed in claim 1 further comprising presenting said service response at said processor platform in response to said initiating operation.

10. A method as claimed in claim 9 further comprising terminating said presenting operation upon detection, at said server system, of a terminate service response indicator from said processor platform.

11. A method as claimed in claim 1 wherein said service response is a metaphor, and said method further comprises the step of displaying said metaphor in connection with said Web page on said processor platform.

12. A method as claimed in claim 11 further comprising the step of customizing said metaphor to include a parameter set relevant to said Web page, said customized metaphor describing a conditional service presented upon execution of said second code module.

13. A method as claimed in claim 1 further comprising the steps of:

executing said second code module in response to said initiating operation, said second code module including a Web address for a second Web page;

downloading information content from said second Web page at said processor platform; and

presenting said information content in said service response at said processor platform.

14. A method of operating a computer network to add function to a Web page comprising:

downloading said Web page at a processor platform, said downloading step being performed by a Web browser;

when said Web page is downloaded, automatically executing a first code module embedded in said Web page;

said first code module issuing a command to retrieve a second code module;

receiving, at a server system, information characterizing at least one of said processor platform and said Web browser;

assembling, in response to said issuing operation, said second code module having a service response, said assembling operation being performed at a server system, and said assembling operation assembling said second code module in response to said information;

downloading said second code module to said processor platform; and

initiating execution of said second code module at said processor platform.

15. A method as claimed in claim 14 further comprising storing said information in a visitor database of said server system, said information being associated with a tracking index.

16. A method as claimed in claim 15 further comprising the steps of:

applying said tracking index to said processor platform in response to said information; and

using said tracking index at said server system to track and identify said processor platform.

17. A method of operating a computer network to add function to a Web page comprising:

downloading said Web page at a processor platform, said downloading step being performed by a Web browser;

when said Web page is downloaded, automatically executing a first code module embedded in said Web page;

said first code module issuing a command to retrieve a second code module;

assembling, in response to said issuing operation, said second code module having a service response, said service response is a metaphor;

initiating execution of said second code module at said processor platform;

displaying said metaphor in connection with said Web page on said processor platform;

detaching said metaphor from said Web page; and

displaying said metaphor disassociated from said Web page.

18. A computer readable code module for adding function to a Web page, said code module configured to be embedded in said Web page generated in a HyperText Markup Language (HTML) and configured for automatic execution when said Web page is downloaded to a client machine supporting a graphical user interface and a Web browser, said computer readable code module including:

means for communicating a Web address of said Web page to a server system via a network connection to initiate a download of a second computer readable code module to said client machine;

means for commanding an assembly, at said server system, of said second computer readable code module containing a service response related to said Web page;

means for commanding a download of said second computer readable code module to said client machine;

means for initiating execution of said second computer readable code module following said download of said second computer readable code module; and

means for providing a comment tag informing said Web browser to ignore said initiating means.

19. A computer readable code module as claimed in claim **18** further comprising means for communicating information characterizing at least one of said Web browser and said client machine to said server system so that said assembled second computer readable code module is responsive to said information.

20. A method of operating a computer network to add function to a Web page comprising:

downloading said Web page at a processor platform, said downloading operation being performed by a Web browser;

when said Web page is downloaded, automatically executing a first code module embedded in said Web page, wherein execution of said first code module initiates retrieval of a second code module;

receiving, at a server system, information from said processor platform;

providing, from said server system, said second code module having a service response, said service response being formed in response to said information;

downloading said second code module to said processor platform; and

initiating execution of said second code module at said processor platform.

21. A method as claimed in claim **20** wherein said information received at said server system characterizes at least one of said processor platform and said Web browser.

22. A method as claimed in claim **20** further comprising:

obtaining informational content of said Web page at said server system; and

determining said service response related to said informational content.

23. A method as claimed in claim **20** further comprising:

storing, at said server system, said service response in association with a Web address of said Web page; and

said providing operation accesses said service response associated with said Web address so that said service response is included in said second code module.

24. A method as claimed in claim **20** wherein said service response is one of a denial of service indication, a conditional service indication, and a predetermined service.

25. A method as claimed in claim **20** further comprising presenting said service response at said processor platform in response to said initiating operation.

26. A method as claimed in claim **25** further comprising terminating said presenting operation upon detection, at said server system, of a terminate service response indicator from said processor platform.

27. A method as claimed in claim **20** wherein said service response is a metaphor, and said method further comprises the step of displaying said metaphor in connection with said Web page on said processor platform.

28. A method as claimed in claim **27** further comprising:

detaching said metaphor from said Web page; and

displaying said metaphor disassociated from said Web page on said processor platform.

29. A method as claimed in claim **20** wherein said second code module includes a Web address for a second Web page, and said method further comprises:

downloading information content form said second Web page at said processor platform in response to said execution of said second code module; and

presenting said information content in said service response at said processor platform.

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