



(51) International Patent Classification:
H05K 7/20 (2006.01)

(21) International Application Number:
PCT/US2011/023350

(22) International Filing Date:
1 February 2011 (01.02.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/300,821 2 February 2010 (02.02.2010) US

(71) Applicant (for all designated States except US): **EX-AFLOP LLC** [US/US]; 1600 Amphitheatre Parkway, Mountain View, California 94043 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MALONE, Christopher G.** [US/US]; 1879 Fordham Way, Mountain View, California 94040 (US). **CLIDARAS, Jimmy** [US/US]; 840 Starlite Lane, Los Altos, California 94024 (US). **RYAN, Michael C.** [US/US]; 6276 Sager Way, San Jose, California 95123 (US).

(74) Agents: **WERNLI, Matthew, K.** et al.; Fish & Richardson P.C., P.O. Box 1022, Minneapolis, Minnesota 55440-1022 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: **BLENDED WATER-BASED DATA CENTER COOLING**

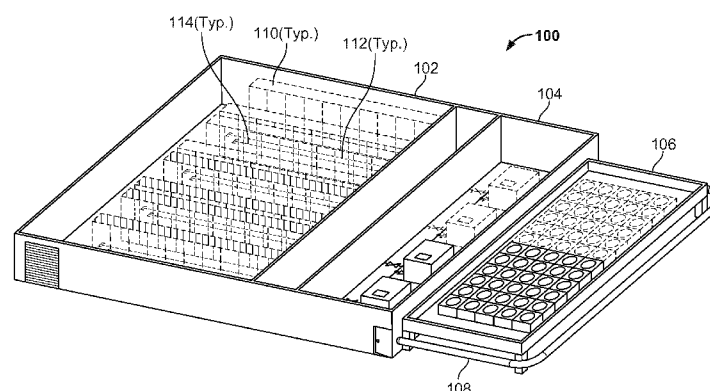


FIG. 1A

(57) Abstract: A method of providing cooling by a cooling system to a computer data center. The method includes providing a plurality of air-and-water radiators and one or more chillers, the chillers each having a first side in fluid communication with a chilled water loop and a second side in communication with a condenser water loop. The method also includes circulating a first portion of return water coming from the computer data center to a first subset of the air-and-water radiators and through the condenser water loop, circulating a second portion of the return water from the computer data center to a second subset of the air-and-water radiators and through the chilled water loop, and circulating the first portion and the second portion of the return water to the computer data center as cooled supply water.

