(54) **PREDICTIVE GEO-TEMPORAL ADVERTISEMENT TARGETING**

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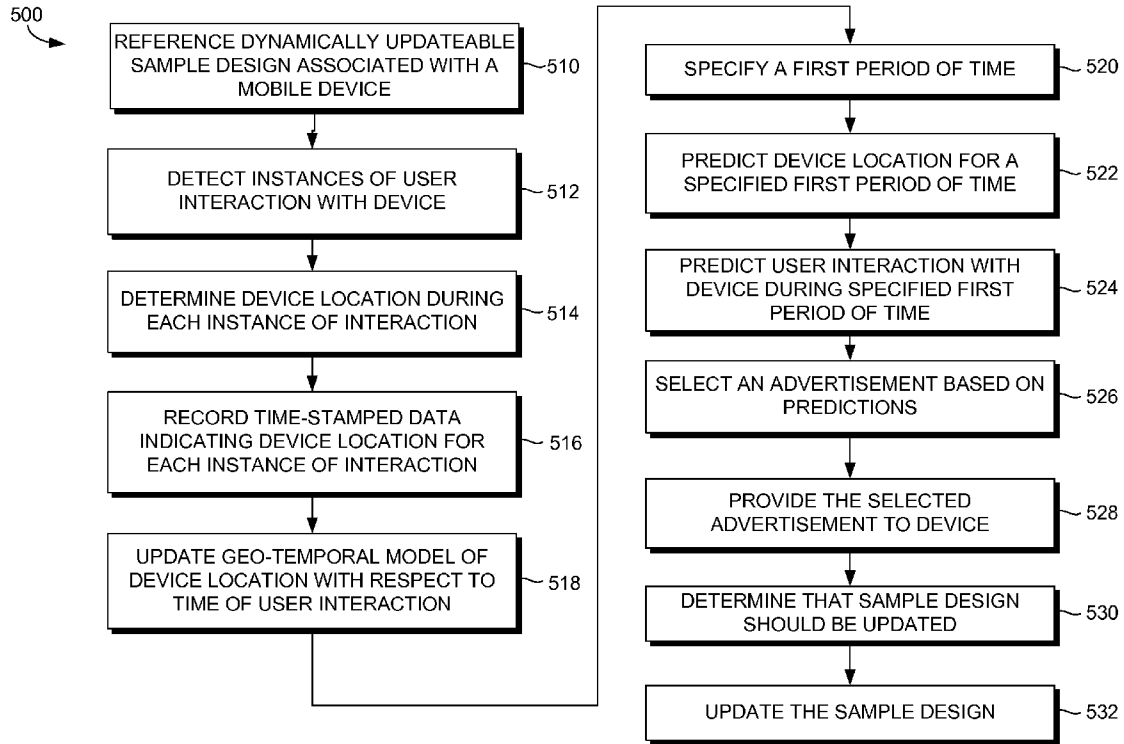(73) Assignee: **MICROSOFT CORPORATION**, Redmond, MO (US)

(57) **ABSTRACT**

A method, system, and medium are provided for targeting advertisements to users of mobile devices based on geo-temporal models. Time-stamped location information is collected for a mobile device and a dynamic geo-temporal model is constructed and updated when new data is collected according to a sample design. Using the geo-temporal model, device location and instances of user interaction with the device can be predicted, and advertisements can be provided based on the predicted location. Advertisements can be cached on the mobile device for later presentation, and the sample design can be updated to improve efficiency and accuracy in the modeling system.

MEMORY
112

PROCESSOR(S)
114

PRESENTATION
COMPONENT(S)
116

I/O PORT(S)
118

I/O COMPONENTS
120

POWER SUPPLY
122

110

100

FIG. 1.

FIG.

200

210

AD NETWORK

224 AD SOURCE 225 227

226 AD SERVER 229 227

228 236 234 241 GEO-TEMPORAL TARGETING SERVER

212 CONTENT PROVIDER

220 LAN

222 NETWORK

216

216

214 MOBILE NETWORK

216

MOBILE PREDICTIVE TARGETING ENGINE

MODELING COMPONENT 338

SAMPLE DESIGN ENGINE

SAMPLE DESIGN STORE 340

UPDATING COMPONENT 348

PREDICTION COMPONENT 346

DATA STORE 334

SAMPLING COMPONENT 326

LOCATION MODULE 328

CACHE MODULE 330

INTERACTION MODULE 332

317

THIRD PARTY SOURCE 312

INTERACTION DATA SOURCE 314

LOCATION DATA SOURCE 316

MOBILE DEVICE 310

CACHE 315

AD SELECTION COMPONENT 322

AD STORE 324

AD SERVING COMPONENT 320

AD NETWORK 318

300

FIG. 3.

FIG. 4.

DOCKET ALARM
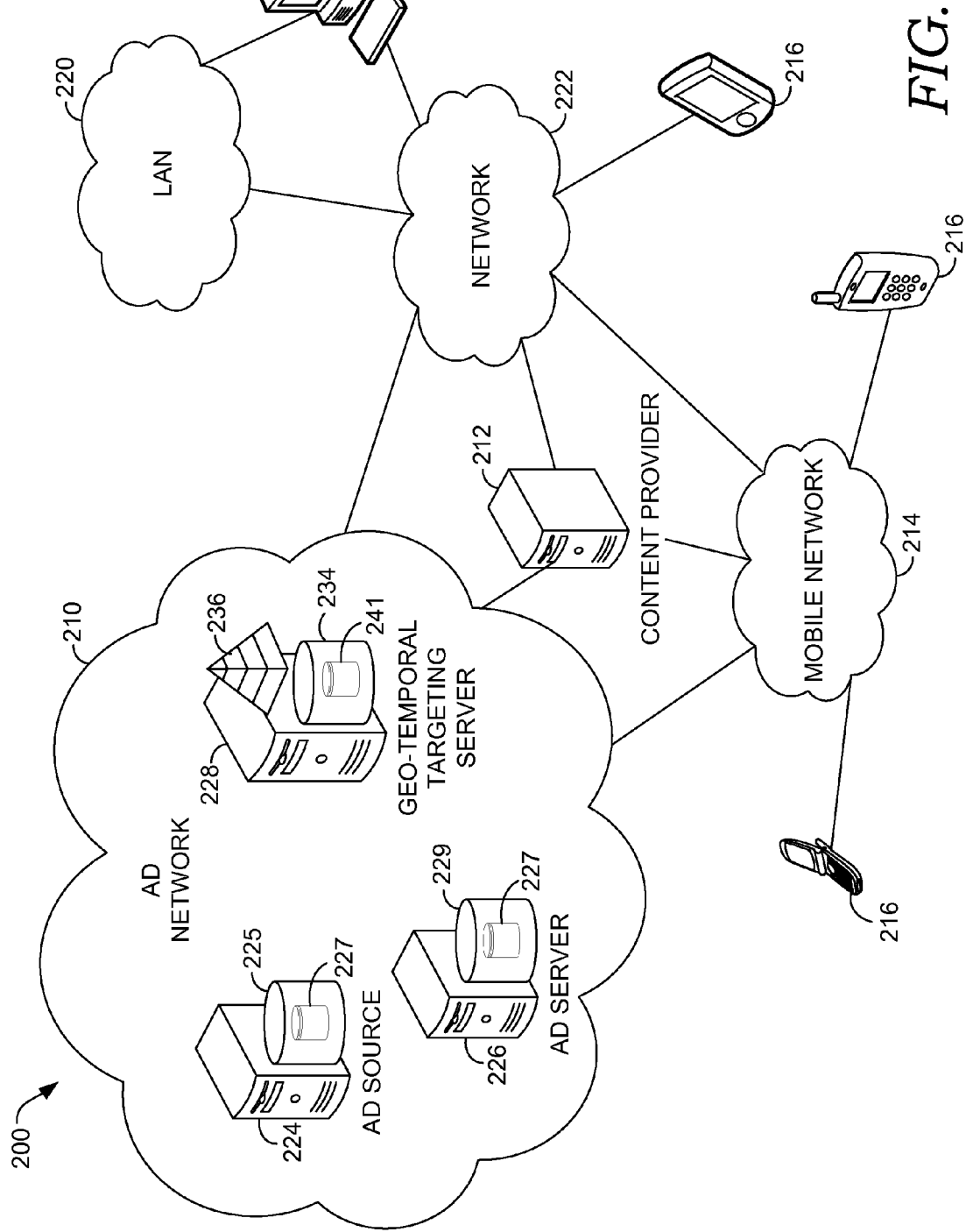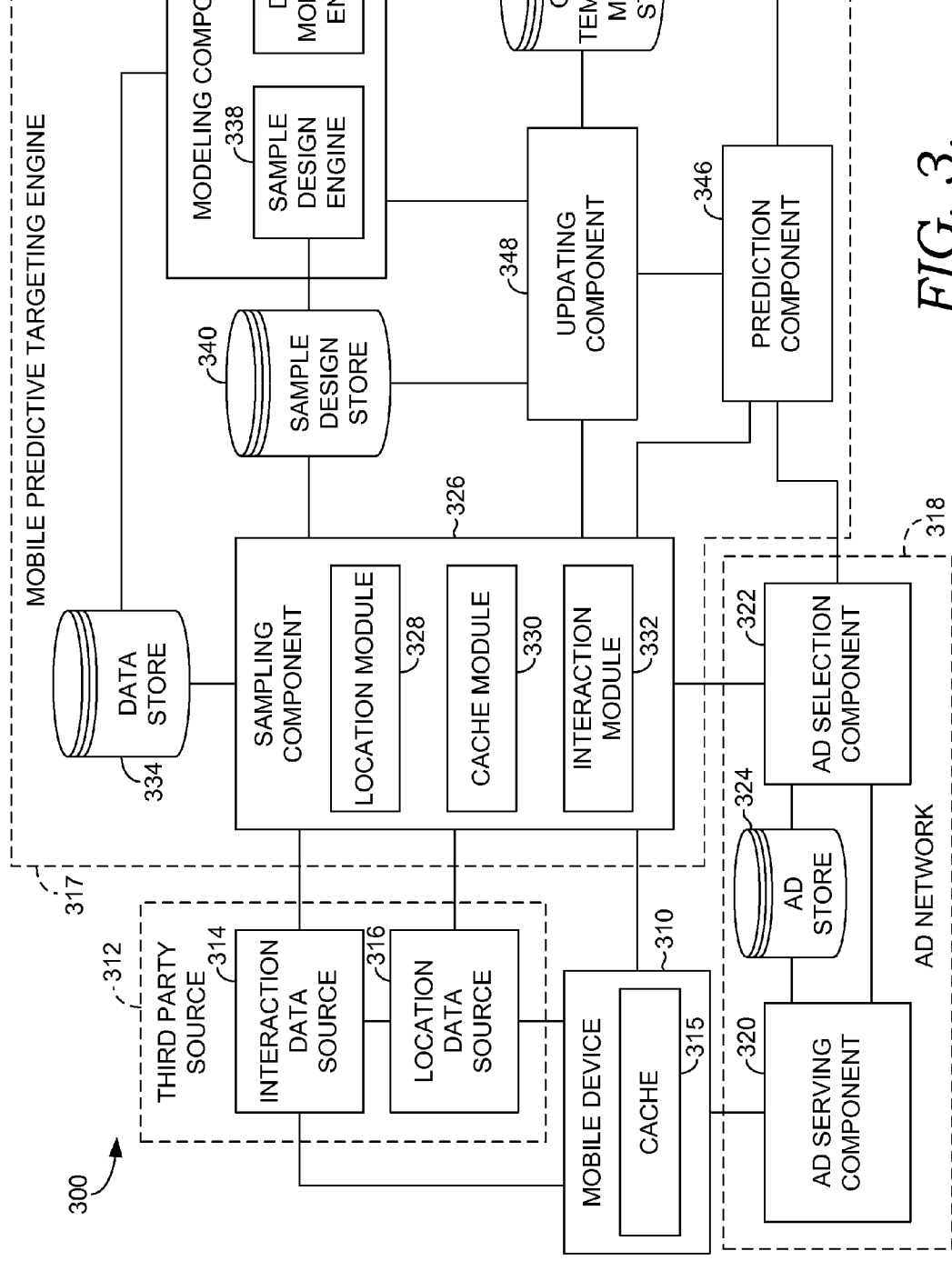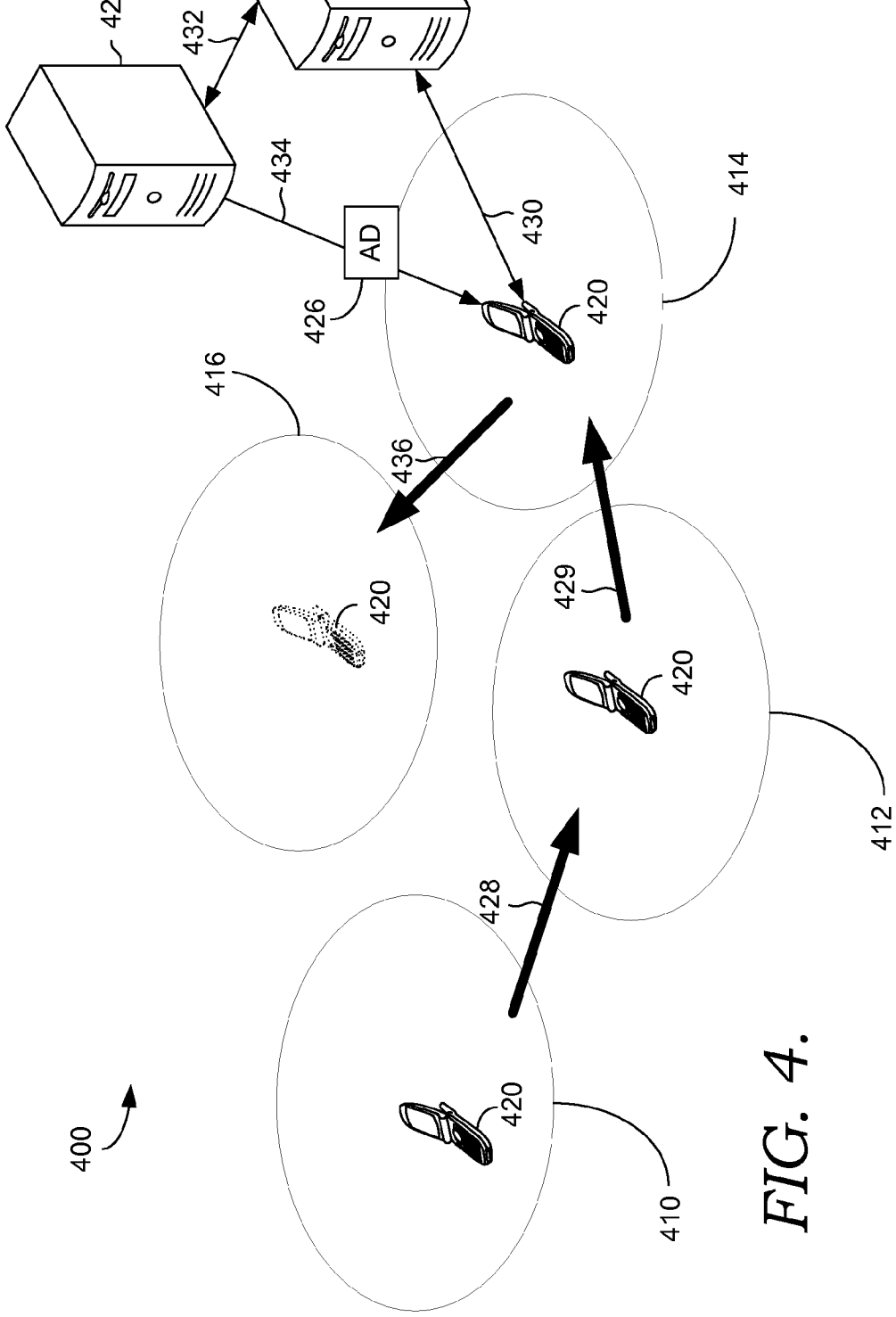
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