

(12) United States Patent

Kruglick

(10) Patent No.:

US 9,094,888 B2

(45) Date of Patent:

Jul. 28, 2015

(54) WIRELESS DEVICE HANDOFF BETWEEN WIRELESS NETWORKS

(75) Inventor: Ezekiel Kruglick, Poway, CA (US)

(73) Assignee: EMPIRE TECHNOLOGY

DEVELOPMENT LLC, Wilmington,

DE (US)

Subject to any disclaimer, the term of this (*) Notice:

patent is extended or adjusted under 35

U.S.C. 154(b) by 384 days.

(21) Appl. No.: 13/263,835

(22) PCT Filed: Apr. 29, 2011

(86) PCT No.: PCT/US2011/034470

§ 371 (c)(1),

(2), (4) Date: Oct. 10, 2011

(87) PCT Pub. No.: WO2012/148410

PCT Pub. Date: Nov. 1, 2012

(65)**Prior Publication Data**

US 2012/0276901 A1 Nov. 1, 2012

(51) Int. Cl.

H04W 36/00 (2009.01)H04W 36/32 (2009.01)H04W 16/28 (2009.01)

U.S. Cl.

CPC *H04W 36/32* (2013.01); *H04W 16/28* (2013.01); H04W 36/0055 (2013.01)

Field of Classification Search

CPC H04W 36/32; H04W 36/30; H04W 36/18; H04W 36/08; H04W 36/14; H04W 36/12 USPC 455/436-443, 67.11, 226.2 See application file for complete search history.

(56)References Cited

U.S. PATENT DOCUMENTS

6,438,389	B1	8/2002	Sandhu et al.
6,829,481	B2	12/2004	Souissi
2002/0187780	A1	12/2002	Souissi
2006/0148451	A1	7/2006	Narasimha
2007/0021119	A1	1/2007	Lee et al.
2008/0076430	A1	3/2008	Olson
2008/0273506	A1	11/2008	Kezys
2008/0310371	A1	12/2008	Russell
2009/0017823	A1	1/2009	Sachs et al.
2009/0111469	A1	4/2009	Lee et al.
2010/0093354	A1*	4/2010	Agashe et al 455/436
2012/0149430	A1*	6/2012	Siomina et al 455/525
2013/0107865	A1*	5/2013	Diachina et al 370/331
2014/0169267	A1*	6/2014	Zhang et al 370/315

FOREIGN PATENT DOCUMENTS

ΕP 1643785 A1 4/2006 2006086910 A 3/2006

(Continued)

OTHER PUBLICATIONS

Australia Patent Office, International Search Report and Written Opinion of the International Searching Authority for PCT/US2011/ 034470, prepared on Jul. 27, 2011, Australia.

Cheng, Sheng-Tzong et al., IPv6-based dynamic coordinated call admission control mechanism over integrated wireless networks, IEEE Journal on Selected Areas in Communications 23, No. 11 (Nov. 2005): pp. 2093-2103.

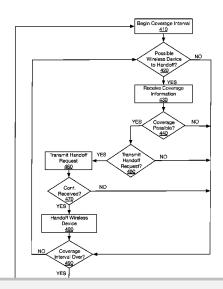
(Continued)

Primary Examiner — Temica M Beamer (74) Attorney, Agent, or Firm — Brundidge & Stanger, P.C.

(57)**ABSTRACT**

Examples are disclosed for a wireless device handoff between a first wireless network and a second wireless network.

29 Claims, 9 Drawing Sheets



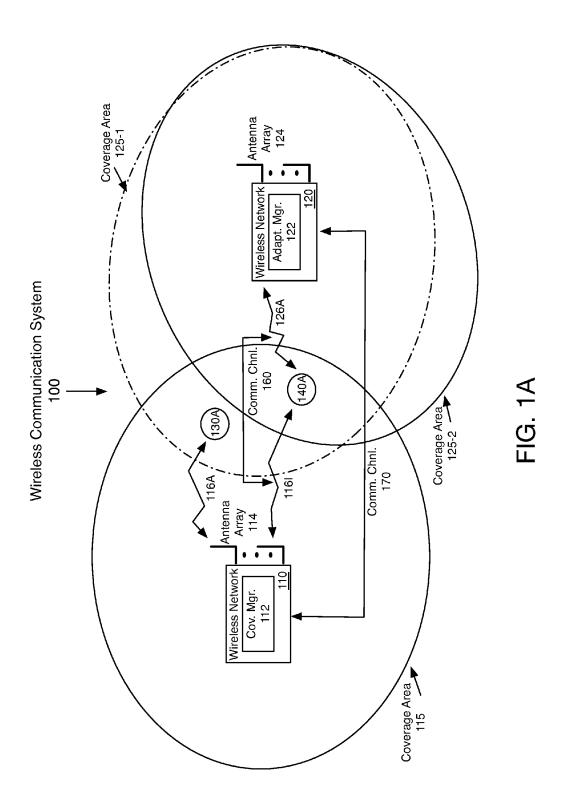


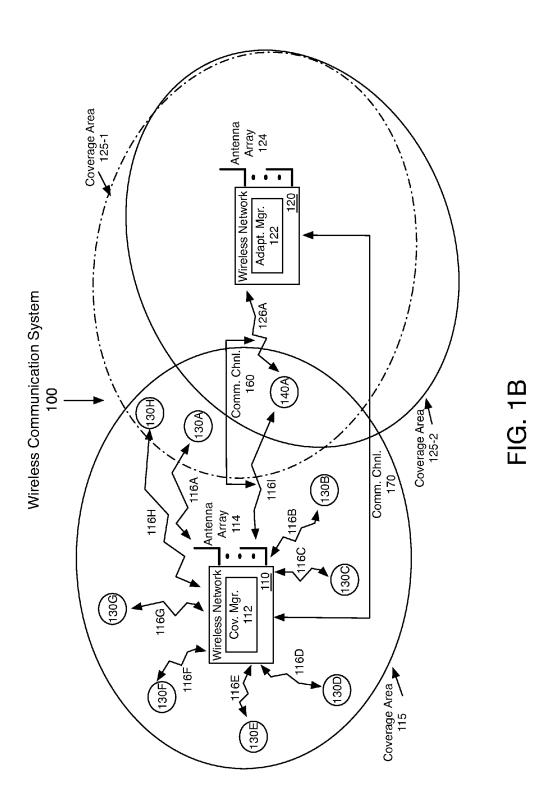
US 9,094,888 B2

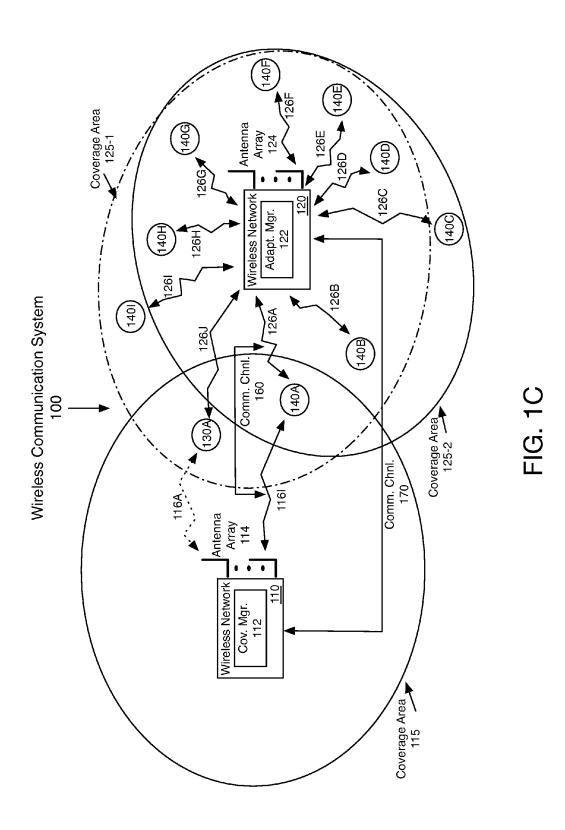
Page 2

(56)	References Cited	OTHER PUBLICATIONS
	FOREIGN PATENT DOCUM	Mohanty, S. et al., A cross-layer (layer 2+ 3) handoff management protocol for next-generation wireless systems, IEEE Transactions on Mobile Computing 5, No. 10 (2006): 1347-1360. Ferrus, R., Vertical handover support in coordinated heterogeneous
JP	2008252330 A 10/2008	radio access networks, Proceedings of the 14th IST Mobile and
KR	1020060038729 A 5/2006	Wireless Communications Summit, Jun. 2005, Dresden, Germany,
KR	1020090041777 A 4/2009	accessed online via http://www.eurasip.org/Proceedings/Ext/IST05/
WO	2007066882 A1 6/2007	papers/430.pdf on Oct. 10, 2011.
WO	2010121885 A1 10/2010	
WO	2010123417 A1 10/2010	* cited by examiner











DOCKET A L A R M

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

