また、無線ネットワークは、一度接続が確立してもすぐに切断されるといったことがある（例えば、電波受信エリア境界付近にいる場合）。したがって、ネットワーク接続のバタツキを防ぐためには切替え先となるネットワークが安定した状態となった上でハンドオーバ処理を実施するといったことも重要となってくる。

発明の開示

本発明はこのような点に鑑みてなされたものであり、通信中断時間を皆無とし、通信の継続性を良好に維持するための高品質なハンドオーバ処理を行うモバイルノードを提供することを目的とする。

本発明では上記課題を解決するために、図１に示すような、モバイルＩＰネットワーク上で通信を行うモバイルノード１０において、ネットワークと接続するインタフェース機能を有するネットワークデバイス１１－１～１１－ｎと、ネットワークデバイス１１－１～１１－ｎが受信する電波強度または無線帯域の少なくとも一方にもとづいて、ネットワーク品質を監視するネットワーク品質監視部１２と、ネットワーク品質の状態に応じて、通信が切断される前に、気付アドレスをアドレス登録先へ送信して、通信情報の経路を変更し、あらたなネットワークに接続先を切替えるためのハンドオーバを行うハンドオーバ制御部１３と、気付アドレスがアドレス登録先で更新されたことを示す応答を受信し、通信が切断されるまでは、切替え前のネットワークとの受信機能を維持するネットワーク制御部１４と、を有することを特徴とするモバイルノード１０が提供される。

ここで、ネットワークデバイス１１－１～１１－ｎは、ネットワークと接続するインタフェース機能を有する。ネットワーク品質監視部１２は、ネットワークデバイス１１－１～１１－ｎが受信する電波強度または無線帯域の少なくとも一方にもとづいて、ネットワーク品質を監視する。ハンドオーバ制御部１３は、ネットワーク品質の状態に応じて、通信が切断される前に、気付アドレスをアドレス登録先へ送信して、通信情報の経路を変更し、あらたなネットワークに接続先を切替えるためのハンドオーバを行う。ネットワーク制御部１４は、気付アドレスがアドレス登録先で更新されたことを示す応答を受信し、通信が切断されるまでは、切替え前のネットワークとの受信機能を維持する。

本発明の上記および他の目的、特徴および利点は本発明の例として好ましい実施の形態を表す添付の図面と関連した以下の説明により明らかになるであろう。

図面の簡単な説明

図１は、本発明のモバイルノードの原理図である。

図２は、モバイルノードの動作を示すシーケンス図である。

図３は、モバイルノードの構成を示す図である。

図４は、ネットワーク品質低下によるハンドオーバを示す図である。

図５は、ネットワーク品質復旧によるハンドオーバを示す図である。

図６は、ネットワーク品質監視部の動作を示すフローチャートである。

図７は、電波強度監視部の動作概念を示す図である。

図８は、電波強度監視部の動作を示すフローチャートである。

図９は、急激劣化閾値を用いた電波強度監視部の動作概念を示す図である。

図１０は、無線帯域監視部の動作を示すフローチャートである。

図１１は、品質管理テーブルを示す図である。

図１２は、ネットワーク状態管理部の動作を示すフローチャートである。

図１３は、ネットワーク切替え制御部の動作を示すフローチャートである。

図１４は、ネットワーク切替え制御部の動作を示すフローチャートである。

図１５は、経路制御用のルータ情報リストを示す図である。

図１６は、ネットワーク制御部の動作を示すフローチャートである。

図１７は、インタフェース処理部の動作を示すフローチャートである。

図１８は、リンク処理部の動作を示すフローチャートである。

図１９は、アクセスポイント切替えのハンドオーバを説明するための図である。

発明を実施するための最良の形態

以下、本発明の実施の形態を図面を参照して説明する。図１は本発明のモバイルノードの原理図である。モバイルノード１０は、モバイルＩＰネットワーク上で通信を行う端末装置であり、ノートパソコン、ＰＤＡ、携帯電話機などに該当する。なお、本発明の機能は、モバイルＩＰｖ４、モバイルＩＰｖ６のいずれに

も適用可能である。

ネットワークデバイス１１－１～１１－ｎは、ネットワークと接続するインタフェース機能をそれぞれ有し、例えば、ＮＩＣ（ネットワーク・インタフェース・カード）に該当する。モバイルノード１０は、無線ＬＡＮや第３世代携帯電話ネットワークのＦＯＭＡ（登録商標、以下省略）などのネットワークと接続するネットワークデバイスを複数搭載し、１端末で複数のネットワークと接続することができる。

ネットワーク品質監視部１２は、ネットワークデバイス１１－１～１１－ｎが受信する電波強度または無線帯域の少なくとも一方にもとづいて、ネットワーク品質を監視する。

ハンドオーバ制御部１３は、ネットワーク品質の状態に応じて、通信が切断される前に、気付アドレス（ＣｏＡ：Care of Address）をアドレス登録先（ホームエージェントなど）へ送信して、通信情報（ＩＰパケット）の経路を変更し、あらたなネットワークに接続先を切替えるためのハンドオーバを行う。ネットワークの接続切替えとしては、現在通信しているモバイルＩＰネットワークからあらたなモバイルＩＰネットワークへの切替えを行う。

なお、気付アドレスとは、モバイルノード１０が移動先のネットワークで一時的に使用するＩＰアドレスのことである。また、ホームエージェント（ＨＡ：Home Agent）とは、モバイルノード１０のホームネットワークに存在して、モバイルノード１０宛の情報を配信したり、モバイルノード１０の位置を認識するノードである。

また、接続先のネットワーク選択については、ハンドオーバ制御部１３は、ユーザが設定可能なユーザ優先度（ネットワーク接続の優先順位）を記憶し、ネットワーク品質の変化に応じて、優先順位の高いネットワークへハンドオーバを行うようにする。または、ネットワーク品質監視部１２で管理される、後述のネットワーク品質指標にもとづいてハンドオーバを行うようにする。

ネットワーク制御部１４は、気付アドレスがアドレス登録先で更新されたことを示す応答を受信し、切替え前のネットワークとの通信が切断されるまでは、切替え前のネットワークとのパケット受信機能を維持する。

ここで、モバイルノード１０が最初、ネットワークＮ１と通信を行っており、ネットワークＮ２へ移動した場合、本発明では、ネットワークＮ１のネットワーク品質の低下を認識すると、ハンドオーバ処理を行い（すなわち、ネットワークが切断される前にネットワーク品質の低下を認識するとハンドオーバを行う）、ネットワークＮ２と接続して通信を継続する。また、このとき、切替え前のネットワークＮ１との通信が切断されるまでは、ネットワークＮ１から送信されるパケットを受信する。これにより、パケットロスを生じることのない（通信中断時間が皆無）ハンドオーバが可能になる。

次にシーケンス図を用いて全体動作について説明する。図２はモバイルノード１０の動作を示すシーケンス図である。最初、モバイルノード１０は、無線ＬＡＮを介して通信を行っており、携帯電話ネットワーク（ＦＯＭＡなど）側へ移動して、その後、携帯電話ネットワークを介して通信を行うものとする。

〔Ｓ１〕モバイルノード１０において、無線ＬＡＮを介して通信を行っている場合に携帯電話ネットワーク側へ移動し、無線ＬＡＮから離れていくことで、無線ＬＡＮとのネットワーク品質が低下する。なお、ネットワーク品質の状態変化は、実際にはモバイルノード１０の移動とは関係なく、モバイルノード１０で検出されるものである。

〔Ｓ２〕モバイルノード１０は、現在通信している無線ＬＡＮとのネットワーク品質の低下を示すイベントを検出し、ハンドオーバ処理を起動する。

〔Ｓ３〕モバイルノード１０は、ＲＳ（Router Solicitation）を携帯電話ネットワークを介してアクセスルータ（ＡＲ：Access Router）へ送信する。ＲＳとは、プレフィクス情報（ＩＰｖ６ならば、１２８ビット長のＩＰｖ６アドレスの上位６４ビットのネットワーク識別子のこと）の取得要求のことであり、ＡＲは、ＩＰネットワークと携帯電話ネットワークとのトラフィック・ルーティングを行うルータのことである。

〔Ｓ４〕ＡＲは、ＲＡ（Router Advertisement：プレフィクス情報の通知）を携帯電話ネットワークを介してモバイルノード１０へ返信する。

〔Ｓ５〕モバイルノード１０は、ＢＵ（Binding Update：気付アドレスの登録要求）を携帯電話ネットワークを介してＨＡへ送信する。

〔Ｓ６〕ＨＡは、ＢＡ（Binding Acknowledgement：気付アドレスの登録応答）を携帯電話ネットワークを介してモバイルノード１０へ返信する。

〔Ｓ７〕モバイルノード１０は、無線ＬＡＮで行っていた通信を、携帯電話ネットワーク、ＡＲ、ＨＡを通じて継続する。

〔Ｓ８〕モバイルノード１０と無線ＬＡＮとの通信が切断する。なお、ステップＳ１のネットワーク品質低下からステップＳ８の切断までは、モバイルノード１０は無線ＬＡＮからのパケットの受信を継続して行っている。

次にモバイルノード１０の構成について説明する。図３はモバイルノード１０の構成を示す図である。図中、太実線矢印はデータを示し、細実線矢印は制御信号を示す。モバイルノード１０は、ネットワークデバイス１１、ネットワーク品質監視部１２、モバイルＩＰ制御部（本発明のハンドオーバ制御部に該当）１３、ネットワーク制御部１４、アプリケーション１５、パケット入力部１６、パケット出力部１７を有する。

アプリケーション１５は、上位アプリケーションであり、他ノードとの通信を実施したり、ユーザにサービスを提供するソフトウェアである。アプリケーション１５は、ネットワークデバイス１１の通信インタフェースの停止（ダウン）処理や、ダイヤルアップの電話接続等のリンク切断処理を実施するアプリケーションを含んでおり、ユーザの指示によりネットワーク制御部１４に対してインタフェースダウン処理またはリンク切断処理を要求する。

モバイルＩＰ制御部１３は、ネットワーク状態管理部１３ａ、ネットワーク切替え制御部１３ｂ、ハンドオーバ実行部１３ｃ、端末管理部１３ｄから構成され、モバイルノード１０の全体管理やハンドオーバ制御を行う。

ネットワーク状態管理部１３ａは、ネットワーク品質監視部１２からのネットワーク品質変化イベントを受信すると、品質状況に応じてネットワーク切替え要求をネットワーク切替え制御部１３ｂに通知する。

ネットワーク切替え制御部１３ｂは、ネットワーク切替え要求にしたがい、ネットワーク品質の変化（例えば、電波強度の低下／復旧、無線帯域の不足／復旧、ネットワーク接続の切断／確立）に応じて、ハンドオーバ実行部１３ｃにハンドオーバ要求を出力し、また、ネットワーク切替えのための指示をネットワーク制

御部１４に出力する。

ハンドオーバ実行部１３ｃは、ハンドオーバ要求にもとづき、モバイルＩＰハンドオーバを実行する。端末管理部１３ｄは、モバイルノード情報を管理し、モバイルノード１０の通信制御及び必要に応じてネットワーク切替え要求をネットワーク切替制御部１３ｂに出力する。また、パケットデータ出力要求をパケット出力部１７へ送信する。

パケット入力部１６は、ネットワークデバイス１１を介して受信したパケットデータの入力処理を行う。パケット出力部１７は、パケットデータ出力要求に応じて、ネットワークデバイス１１を介して、該当ネットワークへパケットデータを送信する。

ネットワーク制御部１４は、パケット送受信制御部１４ａ、インタフェース処理部１４ｂ、リンク制御部１４ｃから構成され、ネットワークデバイス１１の管理及びパケット送受信の全体管理を行う。

パケット送受信制御部１４ａは、パケットの送信／受信制御を行い、ネットワーク切替え時には、切替え前の旧ネットワークとのパケット受信機能を維持したまま、切替え後の新ネットワークとの送受信を実施する。

インタフェース処理部１４ｂは、ネットワークデバイス１１のパケット入出力インタフェースの状態管理制御を行う。さらに、アプリケーション１５の要求により、インタフェースのダウン処理を実施する場合には、対象となるネットワークデバイスの通信インタフェースが現在接続中であれば、ネットワーク切替え要求をネットワーク切替え制御部１３ｂにて実施して、ハンドオーバを実行し、その後（ネットワーク切替え完了後）にダウン処理を行う。また、ネットワークデバイスのインタフェースがアップ（起動）した場合は、該当のネットワークデバイスが有効になったことをネットワーク切替え制御部１３ｂに通知する。

リンク制御部１４ｃは、ネットワークデバイス１１が通信を行うネットワークのリンクの状態管理制御を行う。また、アプリケーション１５の指示によりリンクの切断処理の開始時に、対象となるリンクが現在接続中であれば、ネットワーク切替え要求をネットワーク切替え制御部１３ｂに実施し、ハンドオーバを実行し、その後（ネットワーク切替え完了後）にリンクの切断処理を行う。さらに、

ネットワークデバイスのリンクがアップ（接続確立）した場合は、ネットワークの接続が確立したことをネットワーク切替え制御部１３ｂに通知する。

ネットワークデバイス１１は、ネットワーク種別に応じてネットワークとのインタフェース接続制御及び接続状態の管理を行う。例えば、ネットワーク種別としては、無線ＬＡＮ１１－１、ＦＯＭＡ１１－２、Bluetooth１１－３、ＰＤＣ（Personal Digital Cellular）１１－４等のネットワークデバイス（ＮＩＣのこと）が存在する（なお、無線インタフェースのデバイスだけでなく、有線インタフェースを持つデバイスを備えてもよい）。

ネットワーク品質監視部１２は、電波強度監視部１２ａ、無線帯域監視部１２ｂから構成される。電波強度監視部１２ａは、各種ネットワークデバイス１１の電波強度を、固定または可変に設定された周期で、またはパケット受信を契機として監視する（周期監視とパケット受信を契機とした監視との両方を用いてもよい）。そして、ネットワーク品質の変化を検出した場合には、ネットワーク状態管理部１３ａにネットワーク品質変化イベントを送信する。

無線帯域監視部１２ｂは、各種ネットワークデバイス１１の無線帯域状態を、固定または可変に設定された周期で、またはパケット受信を契機として監視する（周期監視とパケット受信を契機とした監視との両方を用いてもよい）。そして、ネットワーク品質の変化を検出した場合には、ネットワーク状態管理部１３ａにネットワーク品質変化イベントを送信する。

次にネットワーク品質が低下した際の本発明のハンドオーバについて詳しく説明する。図４はネットワーク品質低下によるハンドオーバを示す図である。最初にネットワークのシステム構成（図のシステムは一例である）について説明する。

ＩＰネットワーク１０１には、ＨＡ２０、コレスポンデント・ノード（ＣＮ：Correspondent Node）１０４、ＡＲ（アクセスルータ）３１、４１が接続する。無線ＬＡＮ１０２には、ＡＲ３１、アクセスポイント（ＡＰ：Access Point）３２が接続し、携帯電話ネットワーク（ＦＯＭＡ等）１０３には、ＡＲ４１、無線基地局（ＢＳ：Base Station）４２が接続する。

図に示すようなネットワークシステムに対して、モバイルノード１０は、無線ＬＡＮ１０２から携帯電話ネットワーク１０３への異種ネットワーク間における

ハンドオーバを行うものとする。

〔Ｓ１１〕モバイルノード１０は、ネットワークデバイス１１－１（無線ＬＡＮ用のＮＩＣ）を用いて、ＣＮ１０４とＩＰネットワーク１０１、ＡＲ３１、無線ＬＡＮ１０２、ＡＰ３２を通じて通信を行っており、ＣＮ１０４からパケットがモバイルノード１０に向けて送信されている。

〔Ｓ１２〕ＮＩＣ１１－１が受信する電波強度の低下、または無線帯域の不足が生じると、モバイルノード１０は現在通信を行っているネットワーク接続が切断する前にネットワーク品質の低下を検出し、メインインタフェースをネットワークデバイス１１－２（携帯電話ネットワーク用のＮＩＣ）に変更して、ＮＩＣ１１－２から通信可能な携帯電話ネットワーク１０３上にあるＡＲ４１へＲＳを送信する。

〔Ｓ１３〕ＡＲ４１はＲＳを受信すると直ちにＲＡをモバイルノード１０へ返信する。

〔Ｓ１４〕モバイルノード１０は、ＲＡを受信すると携帯電話ネットワーク１０３内で使用する気付アドレスを生成し、ＡＲ４１をデフォルトルータとして選択する。そして、ＮＩＣ１１－１を使用した経路からの上りのパケット送信を抑止する。その後、ＨＡ２０にＢＵの送信（気付アドレスの送信）を行う。

なお、デフォルトルータとは、すべてのルータに、例えば、インターネット上のすべてのホストやネットワークに対する経路をあらかじめ設定しておくのは無理があるので、最も頻繁に使う汎用的な経路（デフォルトルート）のルーティングを行うルータのことである。

〔Ｓ１５〕ＨＡ２０は、モバイルノード１０よりＢＵを受けとると、モバイルノード１０のホームアドレスと気付アドレスとが対応するデータベースを更新し（すなわち、気付アドレスの更新）、応答としてＢＡを返信する。

〔Ｓ１６〕モバイルノード１０は、通信中であったＣＮ１０４にもＢＵを送信する。

〔Ｓ１７〕ＣＮ１０４は、以後新しい経路である、ＩＰネットワーク１０１、ＡＲ４１、携帯電話ネットワーク１０３、ＢＳ４２を通じてパケットをモバイルノード１０に送信する。

なお、上記の一連のシーケンス中、ＮＩＣ１１－１は無線ＬＡＮ１０２との接続状態を維持しているため、パケット受信は継続されるので、ＣＮ１０４がＢＵを受信する前にモバイルノード１０に向けて無線ＬＡＮ１０２を介してパケットを送信した場合でも、ＮＩＣ１１－１を使用して受信することができる。したがってパケットのロスを生じることなくハンドオーバすることが可能となる。

次にネットワーク品質の復旧に伴う本発明のハンドオーバについて詳しく説明する。図５はネットワーク品質復旧によるハンドオーバを示す図である。図４で上述したハンドオーバで、モバイルノード１０が携帯電話ネットワーク１０３を介してＣＮ１０４と通信を行っている場合に、無線ＬＡＮ１０２側のネットワーク品質が復旧したものとする。

〔Ｓ２１〕モバイルノード１０は、ＮＩＣ１１－２を用いて、ＣＮ１０４とＩＰネットワーク１０１、ＡＲ４１、携帯電話ネットワーク１０３、ＢＳ４２を通じて通信を行っており、ＣＮ１０４からパケットがモバイルノード１０に向けて送信されている。

〔Ｓ２２〕ＮＩＣ１１－１方向（無線ＬＡＮ１０２）のネットワーク品質が復旧すると、モバイルノード１０はその旨を検出し、メインインタフェースをＮＩＣ１１－２からＮＩＣ１１－１へ変更して、無線ＬＡＮ１０２上にあるＡＲ３１へＲＳを送信する。

〔Ｓ２３〕ＡＲ３１は、ＲＳを受信すると直ちにＲＡをモバイルノード１０へ返信する。

〔Ｓ２４〕モバイルノード１０は、ＲＡを受信すると、無線ＬＡＮ１０２で使用する気付アドレスを生成し、メインインタフェースとして選択したＮＩＣ１１－１方向の経路をデフォルトルートにする。また、ＮＩＣ１１－２を使用した経路からの上りパケット送信を抑止する。その後にＢＵにより新しく生成した気付アドレスをＨＡ２０に通知する。

〔Ｓ２５〕ＨＡ２０は、ＢＵを受信すると、モバイルノード１０のホームアドレスと気付アドレスとが対応するデータベースを更新し、応答としてＢＡを返信する。

〔Ｓ２６〕モバイルノード１０は、通信中であったＣＮ１０４にもＢＵを送信す

る。

〔Ｓ２７〕ＣＮ１０４は、以後新しい経路である、ＩＰネットワーク１０１、ＡＲ３１、無線ＬＡＮ１０２、ＡＰ３２を通じてパケットをモバイルノード１０に送信する。

なお、上記の一連のシーケンス中、ＮＩＣ１１－２は携帯電話ネットワーク１０３との接続状態を維持しているため、パケット受信は継続されるので、ＣＮ１０４がＢＵを受信する前にモバイルノード１０に向けて携帯電話ネットワーク１０３を介しパケットを送信した場合でも、ＮＩＣ１１－２を使用して受信することができる。したがってパケットのロスを生じることなくハンドオーバすることが可能となる。

また、ここでのネットワーク品質の復旧に伴うハンドオーバについては、無線ＬＡＮ１０２方向のネットワークの優先順位が、携帯電話ネットワーク１０３よりも高いものとして、携帯電話ネットワーク１０３から無線ＬＡＮ１０２へのネットワーク切替えを行ったが、携帯電話ネットワーク１０３と無線ＬＡＮ１０２との優先順位が同程度のような場合では、携帯電話ネットワーク１０３のネットワーク品質が低下しなければ、必ずしもネットワーク品質の復旧に伴うハンドオーバを行う必要はない。

なお、上記で説明したハンドオーバは、無線ＬＡＮと携帯電話ネットワーク間のハンドオーバについて示したが、無線ＬＡＮの電波強度低下に伴う切替え先となるネットワークは例えば、Ethernet（登録商標）のような有線のネットワークでもよい。また、ネットワーク品質として、電波強度、無線帯域を測定する場合を示したが、有線ネットワークなどの場合は、ネットワークの接続確立が契機となり、このネットワーク接続確立を検出することで、有線ネットワークへのハンドオーバ処理を行うことも可能である。

次にネットワーク品質監視部１２の動作について説明する。ネットワーク品質監視部１２は、品質監視用のタイマを持っており、監視周期はアプリケーションから書き換え可能である。また、品質監視はタイマに設定された周期ごとに処理が起動される。さらに、タイマ起動以外にも、品質測定対象のネットワークデバイスがパケットを受信した契機にもネットワーク品質監視機能が呼び出される。

周期監視はタイマ満了時に動作するタイマハンドラが本機能を起動し、パケット受信を契機にした監視はハードウェア割り込みハンドラが起動する。どちらの処理により起動されたかを識別するためには、起動元のハンドラが、自身を識別するためのＩＤを、ネットワーク品質監視部１２の起動時のパラメータとして設定するといった方法による。

また、品質監視が過剰に起動されシステムのパフォーマンスに影響を与えることを防止するために（すなわち、処理が過負荷になるのを防止するために）、過剰監視防止用タイマを設けて必要以上に監視処理が実行されないようにする。ネットワーク品質監視機能が起動されると、過剰監視防止タイマのチェックが行われた後、すべての実装されたネットワークデバイス１１－１～１１－ｎについて電波強度監視部１２ａ及び無線帯域監視部１２ｂを用いてネットワーク品質を測定する。

図６はネットワーク品質監視部１２の動作を示すフローチャートである。

〔Ｓ３１〕過剰防止用タイマは満了しているか否かを判断する。満了（タイムカウント終了）ならばステップＳ３２へ、そうでなければ終了する。なお、過剰防止用タイマがタイムカウントしている場合はネットワーク品質の測定は行わない。

〔Ｓ３２〕実装されたすべてのネットワーク品質測定対象のネットワークデバイス１１－１～１１－ｎについてステップＳ３２ａ～ステップＳ３２ｅの該当処理を行う。

〔Ｓ３２ａ〕デバイス状態が接続か否か（ネットワークデバイス１１が装置に接続されているか否か）を判断する。接続ならステップＳ３２ｂへ、切断ならステップＳ３３へいく。

〔Ｓ３２ｂ〕ネットワーク状態が接続か否か（ネットワークデバイス１１が現在通信を行っているか否か）を判断する。接続ならステップＳ３２ｅへ、切断ならステップＳ３３へいく。

〔Ｓ３２ｃ〕電波強度監視部１２ａの処理を起動する。

〔Ｓ３２ｄ〕電波強度が通常状態ならばステップＳ３２ｅへ、低下状態ならばステップＳ３３へいく。

〔Ｓ３２ｅ〕無線帯域監視部１２ｂの処理を起動する。

〔Ｓ３３〕タイムアウトの呼び出しがあるか否かを判断する。呼び出しがあれば監視タイマ値に設定した時間後にスタートへ戻り、なければパケット受信契機によるネットワーク品質測定の起動であるためステップＳ３４へいく。

〔Ｓ３４〕過剰監視防止用タイマを起動し、ネットワーク品質測定処理を停止する。

次に電波強度監視部１２ａの動作について説明する。図７は電波強度監視部１２ａの動作概念を示す図である。縦軸は電波強度、横軸は時間であり、受信電波の波形を示している。

電波強度監視部１２ａは、電波状態の低下・復旧を判定するための２つの閾値を持つ。１つは電波強度が低下したことを判定するための低下閾値（圏外閾値）であり、もう１つは電波強度が復旧したことを判定するための復旧閾値（圏内閾値）である。これらの閾値の設定はアプリケーション１５の操作により任意に変更することができる。

ここで、１つの閾値しか設けていないと、閾値をまたぐ小さな電波強度の変化が頻繁に発生した場合に、その都度制御を切替えてしまうと、システムの処理負荷が増大してしまう。したがって、本発明では、低下・復旧の２種類の閾値を設けて、システムの処理負荷増大を防止する。また、電波強度の測定は図の場合、２００ｍｓ単位で測定している様子を示している。

電波強度監視部１２ａは、まず、通信中の無線チャネルの電波強度を読み出す。電波強度を読み出すには、例えば、無線ＬＡＮカードとのインタフェースを使って電波状態を問い合わせる、という方法がある。

電波強度の低下は、読み出した電波強度が低下閾値よりも低いことによって検出され、その場合にハンドオーバが実行される。ただし、レベルＬ１のように、低下閾値を下回っても短い時間で低下閾値を上回ってしまうような場合ではハンドオーバは行わない。なぜなら、電波状態が低下閾値付近で揺らいでいるような状態でハンドオーバを実行するとネットワーク切替えにバタツキが生じ、安定した接続制御が行えなくなるからである。

したがって、本発明では、受信する電波の品質が低下閾値を例えば、一定時間連続して下回った場合に、ネットワーク品質の低下と認識してはじめてハンドオ

ーバを実行する。例えば、図の場合、低下閾値をおよそ６００ｍｓ間下回ったレベルＬ２でハンドオーバを行うようにする。

なお、電波強度の低下を検出した場合、電波強度監視部１２ａは、ネットワーク状態管理部１３ａへ電波強度低下を通知し、自身の電波状態を低下に設定する。電波強度が低下となったため、それ以外の品質監視（無線帯域）については実施しない。その後、本機能がタイムアウトにより起動した場合、次回起動用のタイマを設定する。

一方、電波強度の復旧は、電波強度が低下状態から以後に読み出した電波強度が復旧閾値よりも大きな値であったときに検出され、その場合にハンドオーバが実行される。ただし、レベルＬ３のように、復旧閾値を上回っても短い時間で復旧閾値を下回ってしまうような場合にはハンドオーバは行わない。なぜなら、上記と同様な理由により、電波状態が復旧閾値付近で揺らいでいるような状態でハンドオーバを実行するとネットワーク切替えにバタツキが生じ、安定した接続制御が行えなくなるからである。

したがって、本発明では、受信する電波の品質が復旧閾値を例えば、一定時間連続して上回った場合に、ネットワーク品質の復旧と認識してはじめてハンドオーバを実行する。例えば、図の場合、復旧閾値をおよそ６００ｍｓ間上回ったレベルＬ４でハンドオーバを行っている。

なお、電波強度が復旧した場合、電波強度監視部１２ａは、ネットワーク状態管理部１３ａへ電波強度復旧を通知し、自身の電波強度状態を通常に設定し、その後に、無線帯域監視を実行することになる。また、さらに無線電波強度の値に移動平均等の統計手法を合わせて用いれば、一時的な電波強度の強弱の影響をより少なくすることができる。

図８は電波強度監視部１２ａの動作を示すフローチャートである。

〔Ｓ４１〕電波強度を読み出す。

〔Ｓ４２〕電波強度状態を判断する。通常ならばステップＳ４３へ、低下ならばステップＳ４６へいく。

〔Ｓ４３〕電波強度が例えば、一定時間連続して低下閾値より下回るか否かを判断する。下回ればステップＳ４４へ、そうでなければ終了する。

〔Ｓ４４〕電波強度低下をネットワーク状態管理部１３ａへ通知する。

〔Ｓ４５〕ネットワーク状態管理部１３ａに対し、電波強度状態が低下に設定される。

〔Ｓ４６〕電波強度が例えば、一定時間連続して復旧閾値より上回るか否かを判断する。上回ればステップＳ４７へ、そうでなければ終了する。

〔Ｓ４７〕電波強度復旧をネットワーク状態管理部１３ａへ通知する。

〔Ｓ４８〕ネットワーク状態管理部１３ａに対し、電波強度状態が通常に設定される。

次に急激劣化閾値を用いて電波強度の低下を認識しハンドオーバを行う場合について説明する。図９は急激劣化閾値を用いた電波強度監視部１２ａの動作概念を示す図である。縦軸は電波強度、横軸は時間である。

電波強度監視部１２ａは、低下閾値よりさらに低い値で急激劣化閾値を持っている。電波強度の測定時、電波強度が急激劣化閾値を下回ったときは、現在通信中のネットワークとの接続が維持できないと判断し、ハンドオーバを即時に開始させる。例えば、図の場合、２００ｍｓｅｃ単位で２回連続して急激劣化閾値を超えたレベルＬ５でハンドオーバが行われる。

このように、無線ＬＡＮのアクセスポイントの故障など予期せぬ事象により、現在使用中の電波が急激に劣化した場合、ネットワークの接続が切断される可能性がある。したがって、本発明では、このような場合に備えて、急激劣化閾値を設定し、瞬時にハンドオーバを行うことで、通信中断時間を最小限にする。

次に無線帯域監視部１２ｂの動作について説明する。無線帯域監視部１２ｂは、電波強度監視部１２ａと同様に、無線帯域の不足（ある無線帯域を使用するユーザ数が増加）・復旧の２つの閾値を用いて検出する。すなわち、帯域不足を判定するための閾値として不足閾値、帯域復旧判定のための閾値として復旧閾値を持つことになる。

無線帯域と閾値の比較については、電波強度監視の場合と同様である。なお、無線帯域読み出しの手段としては、実際に送受信されるパケットの平均転送速度を常時監視して結果を蓄積し、その情報を読み出したりする方法や、通信事業者が独自にプロトコルに実装した制御情報を見る方法などがある。

図１０は無線帯域監視部１２ｂの動作を示すフローチャートである。

〔Ｓ５１〕利用可能な無線帯域を読み出す。

〔Ｓ５２〕無線帯域状態を判断する。通常ならばステップＳ５３へ、不足ならばステップＳ５６へいく。

〔Ｓ５３〕無線帯域が例えば、一定時間連続して、不足閾値より下回るか否かを判断する。下回ればステップＳ５４へ、そうでなければ終了する。

〔Ｓ５４〕無線帯域不足をネットワーク状態管理部１３ａへ通知する。

〔Ｓ５５〕ネットワーク状態管理部１３ａに対し、無線帯域が不足に設定される。

〔Ｓ５６〕無線帯域が例えば、一定時間連続して、復旧閾値より上回るか否かを判断する。上回ればステップＳ５７へ、そうでなければ終了する。

〔Ｓ５７〕無線帯域復旧をネットワーク状態管理部１３ａへ通知する。

〔Ｓ５８〕ネットワーク状態管理部１３ａに対し、無線帯域状態が通常に設定される。

次にネットワーク品質監視部１２が管理する品質管理テーブルについて説明する。図１１は品質管理テーブルを示す図である。品質管理テーブルＴ１は、ネットワークデバイス１１－１～１１－ｎに対応して設けられる。

品質管理テーブルＴ１の各項目に対し、デバイス識別子とは該当ネットワークデバイスが無線ＬＡＮなのか携帯電話ネットワークなのか等を示す識別子である。電波状態とは、現在の通信における電波強度である。帯域状態とは現在の通信における無線帯域品質である。デバイス状態とは、該当ネットワークデバイスが使用可か不可か（装置に接続されているか否か）が示される。ネットワーク状態とは、メインインタフェースとして現在通信に使われているか否かが示される。

電波強度低下閾値とは、低下閾値の設定値である。電波強度復旧閾値とは、復旧閾値の設定値である。帯域不足閾値とは、帯域不足閾値の設定値である。帯域復旧閾値とは、帯域復旧閾値の設定値である。監視周期とは、例えば、２００ｍｓなどと設定される。

ネットワーク品質指標とは、ネットワーク品質とユーザの優先度とを重み付けして算出した指標のことである。ネットワーク品質と優先度とをそれぞれ数値化して、α×ネットワーク品質＋β×優先度（α、βは定数）といったようにネッ

トワーク品質指標を算出する。

このようなネットワーク品質指標にもとづきハンドオーバを行えば、より柔軟性のあるハンドオーバが可能になる。例えば、ネットワークＮ１はユーザ優先度が高であり、ネットワークＮ２はユーザ優先度が中である場合、優先度だけで切替えるべきネットワークを選択してしまうと、常にネットワークＮ１が選択されてしまう。

一方、ネットワークＮ１に対して優先度が高で品質が低であり、ネットワークＮ２に対して優先度が中で品質が高という場合には、ネットワークＮ１、Ｎ２に対してネットワーク品質指標を算出すれば、ネットワークＮ２が切替えるべきネットワークとして選択されることになる（すなわち、ネットワーク品質と優先度が加味された選択がなされることになる）。本発明では、ユーザ優先度にもとづくネットワーク切替え、またはネットワーク品質指標にもとづくネットワーク切替えの両方に対応可能である。

次にネットワーク状態管理部１３ａの動作について説明する。ネットワーク状態管理部１３ａは、現在メインとして使用中のインタフェース（ネットワークデバイス）及びインタフェース毎のネットワーク品質状態（通常・低下）を保持している。

電波強度監視部１２ａより電波強度低下の通知を受信した場合、そのインタフェースの電波状態が通常であれば、設定値を品質低下状態に変更する。そして対象のインタフェースがメインとして使用されていれば、ネットワーク切替え要求をネットワーク切替え制御部１３ｂへ送信する。

また、電波強度監視部１２ａより復旧が通知された場合、対象インタフェースの電波強度が低下状態であれば、品質を通常に戻し、ネットワーク切替え制御部１３ｂへネットワーク切替え要求を送信する。なお、無線帯域品質についても上記と同様な制御が行われる。

図１２はネットワーク状態管理部１３ａの動作を示すフローチャートである。

〔Ｓ６１〕ネットワーク品質監視イベントを受信したか否かを判断する。受信した場合は、イベント種別で分岐する。

〔Ｓ６２〕電波強度低下イベントを受信した場合、イベント対象の現在のインタ

フェース（ネットワークデバイス）の品質が低下状態か通常状態かを判断する。低下状態ならば設定はそのままなので変えずに、ステップＳ６１へ戻る。通常状態の場合はステップＳ６３へ行く。

〔Ｓ６３〕イベント対象のネットワークデバイスの設定を通常状態から低下状態に設定する。

〔Ｓ６４〕イベント対象のネットワークデバイスがメインインタフェースか否かを判断する。メインでなければステップＳ６１へ戻り、メインならばステップＳ６５へいく。

〔Ｓ６５〕ネットワーク切替え要求をネットワーク切替え制御部１３ｂへ送信する。

〔Ｓ６６〕無線帯域不足イベントを受信した場合、イベント対象の現在のインタフェース（ネットワークデバイス）の品質が帯域不足状態か通常状態かを判断する。帯域不足状態ならば設定はそのままなので変えずに、ステップＳ６１へ戻る。通常状態の場合はステップＳ６７へ行く。

〔Ｓ６７〕イベント対象のネットワークデバイスの設定を通常状態から帯域不足状態に設定し、ステップＳ６４へいく。

〔Ｓ６８〕電波強度復旧イベントを受信した場合、イベント対象の現在のインタフェース（ネットワークデバイス）の品質が低下状態か通常状態かを判断する。通常状態ならば設定はそのままなので変えずに、ステップＳ６１へ戻る。低下状態の場合はステップＳ６９へ行く。

〔Ｓ６９〕イベント対象のネットワークデバイスの設定を低下状態から通常状態に設定し、ステップＳ６５へいく。

〔Ｓ７０〕無線帯域復旧イベントを受信した場合、イベント対象の現在のインタフェース（ネットワークデバイス）の品質が不足状態か通常状態かを判断する。通常状態ならば設定はそのままなので変えずに、ステップＳ６１へ戻る。帯域不足状態の場合はステップＳ７１へ行く。

〔Ｓ７１〕イベント対象のネットワークデバイスの設定を不足状態から通常状態に設定し、ステップＳ６５へいく。

次にネットワーク切替え制御部１３ｂの動作について説明する。ネットワーク

切替え制御部１３ｂは、実装されているネットワークデバイスが、優先付けして管理する。ネットワーク切替え制御部１３ｂがネットワーク切替え要求を受信した場合、実装されているネットワークデバイスのネットワーク状態を優先度の高い順に検索し、最も優先される、通常状態のインタフェースを特定し、それをメインインタフェースとする。

メインインタフェースが変更された場合には、ネットワーク制御部１４へメインインタフェース変更要求を送信し、かつハンドオーバ実行部１３ｃへＲＳ送信要求をそれぞれ送信し、自身の状態をＲＡ受信待ちとする。そして、これを契機にネットワークのＡＲへＲＳが送信される。ＲＳは変更したメインインタフェースから出力される。

ＡＲからのＲＡ受信はパケット入力部１６から端末管理部１３ｄを通ってネットワーク切替え制御部１３ｂへ通知される。メインインタフェースでＲＡを受信すると、ネットワーク切替え制御部１３ｂはネットワーク制御部１４へ経路切替え要求を送信し、デフォルトルートの切替えを実施した後、ＨＡへのＢＵ送信をハンドオーバ実行部１３ｃへ要求する。最後にＨＡから返信されたＢＡ受信により、ハンドオーバは完了する。

図１３はネットワーク切替え制御部１３ｂの動作を示すフローチャートである。

〔Ｓ８１〕イベントを受信したか否かを判断する。受信した場合は、イベント種別で分岐する。

〔Ｓ８２〕ネットワーク切替え要求を受信した場合、すべてのネットワークについて優先度の高い順にステップＳ８２ａ～ステップＳ８２ｆの該当処理を行う。

〔Ｓ８２ａ〕インタフェース状態は通常状態か否かを判断する。通常でない場合はステップＳ８１へ、通常の場合はステップＳ８２ｂへいく。

〔Ｓ８２ｂ〕メインインタフェースとして該当のネットワークデバイスを選択する。

〔Ｓ８２ｃ〕メインインタフェースを変更するか否かを判断する。変更する場合はステップＳ８２ｄへ、変更しない場合はステップＳ８１へいく。

〔Ｓ８２ｄ〕ネットワーク制御部１４へメインインタフェース変更要求を送信する。

〔Ｓ８２ｅ〕ハンドオーバ実行部１３ｃへＲＳ送信要求を送信し、ステップＳ８２ｆへいく。

〔Ｓ８２ｆ〕状態をＲＡ受信待ちとし、ステップＳ８１へ戻る。

〔Ｓ８３〕イベント種別がＲＡ受信の場合、状態がＲＡ受信待ちか否かを判断する。ＲＡ受信待ちならステップＳ８３ａへいき、そうでなければ終了する。

〔Ｓ８３ａ〕メインインタフェースからの受信か否かを判断する。メインインタフェースからの受信の場合はステップＳ８３ｂへいき、そうでなければ終了する。

〔Ｓ８３ｂ〕ネットワーク制御部１４へ経路切替え要求を送信する。

〔Ｓ８３ｃ〕ハンドオーバ実行部１３ｃへＢＵ送信を要求する。

〔Ｓ８３ｄ〕状態をＢＡ受信待ちにし、ステップＳ８１へ戻る。

〔Ｓ８４〕イベント種別がＢＡ受信の場合、状態がＢＡ受信待ちか否かを判断する。ＢＡ受信待ちならステップＳ８４ａへいき、そうでなければ終了する。

〔Ｓ８４ａ〕メインインタフェースからの受信か否かを判断する。メインインタフェースからの受信の場合はステップＳ８４ｂへいき、そうでなければ終了する。

〔Ｓ８４ｂ〕状態をネットワーク切替え要求待ちにし、ステップＳ８１へ戻る。

図１４はネットワーク切替え制御部１３ｂの動作を示すフローチャートである。ネットワーク品質指標にもとづく切替え制御のフローチャートである。

〔Ｓ８５〕イベントを受信したか否かを判断する。受信した場合は、イベント種別で分岐する。

〔Ｓ８６〕ネットワーク切替え要求を受信した場合、すべてのネットワークについてネットワーク品質指標の高い順にステップＳ８６ａ～ステップＳ８６ｆの該当処理を行う。

〔Ｓ８６ａ〕インタフェース状態は通常状態か否かを判断する。通常でない場合はステップＳ８５へ、通常の場合はステップＳ８６ｂへいく。

〔Ｓ８６ｂ〕メインインタフェースとして該当のネットワークデバイスを選択する。

〔Ｓ８６ｃ〕メインインタフェースを変更するか否かを判断する。変更する場合はステップＳ８６ｄへ、変更しない場合はステップＳ８５へいく。

〔Ｓ８６ｄ〕ネットワーク制御部１４へメインインタフェース変更要求を送信す

る。

〔Ｓ８６ｅ〕ハンドオーバ実行部１３ｃへＲＳ送信要求を送信し、ステップＳ８６ｆへいく。

〔Ｓ８６ｆ〕状態をＲＡ受信待ちとし、ステップＳ８５へ戻る。

〔Ｓ８７〕イベント種別がＲＡ受信の場合、状態がＲＡ受信待ちか否かを判断する。ＲＡ受信待ちならステップＳ８７ａへいき、そうでなければ終了する。

〔Ｓ８７ａ〕メインインタフェースからの受信か否かを判断する。メインインタフェースからの受信の場合はステップＳ８７ｂへいき、そうでなければ終了する。

〔Ｓ８７ｂ〕ネットワーク制御部１４へ経路切替え要求を送信し、ステップＳ８５へ戻る。

〔Ｓ８７ｃ〕ハンドオーバ実行部１３ｃへＢＵ送信を要求する。

〔Ｓ８７ｄ〕状態をＢＡ受信待ちにする。

〔Ｓ８８〕イベント種別がＢＡ受信の場合、状態がＢＡ受信待ちか否かを判断する。ＢＡ受信待ちならステップＳ８８ａへいき、そうでなければ終了する。

〔Ｓ８８ａ〕メインインタフェースからの受信か否かを判断する。メインインタフェースからの受信の場合はステップＳ８８ｂへいき、そうでなければ終了する。

〔Ｓ８８ｂ〕状態をネットワーク切替え要求待ちにし、ステップＳ８５へ戻る。

次にネットワーク制御部１４の動作について説明する。ネットワーク制御部１４は、メインインタフェース変更要求を受信した場合は、メインインタフェースの切替えを行い、また経路切替え要求を受信した場合は、デフォルトルートを指定のインタフェース方向とし、それ以外のインタフェースへの送信経路を無効にすることで、指定インタフェース向け以外にパケットが送信できないようにする。

図１５は経路制御用のルータ情報リストを示す図である。ルータ情報リストＴ２は、ネットワーク制御部１４で管理される。図において最上段にあるルータ情報に対応したインタフェースがメインインタフェースである。

ルータ情報リストＴ２の各項目に対し、ルータリスト識別子とは、無線ＬＡＮのルータリストなのか携帯電話ネットワークのルータリストなのか等を示す識別子である。ルータアドレスとは、該当ネットワークデバイスの現在の通信において接続するルータのアドレスである。デバイス名とは、ネットワークデバイスの

名称（無線ＬＡＮデバイスなのか携帯電話ネットワークデバイスなのか）である。

電波強度状態とは、現在の通信における電波強度である。帯域状態とは、現在の通信における無線帯域品質である。デバイス状態とは、該当ネットワークデバイスが使用可か不可かが示される。ネットワーク状態とは、メインインタフェースとして現在使われているか否かが示される。

図１６はネットワーク制御部１４の動作を示すフローチャートである。

〔Ｓ９１〕イベントを受信したか否かを判断する。受信した場合は、イベント種別で分岐する。

〔Ｓ９２〕経路切替え要求を受信した場合、デフォルトルートを指定のインタフェース方向とする。

〔Ｓ９３〕指定インタフェース以外の送信経路を無効にし、ステップＳ９１へ戻る。

〔Ｓ９４〕メインインタフェース変更要求を受信した場合、メインインタフェースを指定のネットワークインタフェースに切替え、ステップＳ９１へ戻る。

次にネットワークデバイスの停止・起動に伴う本発明のハンドオーバについて説明する。ネットワークデバイス１１の起動・停止の操作はアプリケーション１５から可能であるが、本発明では停止が要求されて実際にネットワークデバイスが停止する前にあらかじめインタフェースを切替えることにより、ハンドオーバ処理を高速に行う。これにより、使用中インタフェースの停止に伴うパケットロスを減らすことができる。

また、ネットワークデバイス１１が停止状態にあるとき、起動を要求された場合にはインタフェースの起動処理を実施した後に切替えを要求する。これは起動処理が完了する前に切替え要求を送信すると、通信できないネットワークデバイスを向いたネットワークがデフォルトルートになりパケットの損失が発生する可能性があるためである。

ネットワーク制御部１４内のインタフェース処理部１４ｂは、インタフェースの停止要求を受信した場合、ネットワークデバイスの品質を停止の状態に変更した後、ネットワーク切替え制御部１３ｂへネットワーク切替え要求を送信する。

そして、ネットワーク切替え制御部１３ｂにおいて、ネットワーク品質が通常

状態のネットワークデバイスのうち優先順位が最も高いものが選択され、そのデバイスの向いたネットワークへのハンドオーバ処理が行われる。

その後、インタフェース処理部１４ｂは、ネットワークデバイスのインタフェースを切断する。また、デバイス起動要求を受信した場合には、ネットワークデバイスの起動処理実行後に、ネットワーク切替え要求をネットワーク切替え制御部１３ｂへ送信する。

図１７はインタフェース処理部１４ｂの動作を示すフローチャートである。

〔Ｓ１０１〕イベントを受信したか否かを判断する。受信した場合は、イベント種別で分岐する。

〔Ｓ１０２ａ〕起動要求を受信した場合、デバイス状態が通常か否かを判断する。通常ならステップＳ１０１へ戻り、そうでなければステップＳ１０２ｂへいく。

〔Ｓ１０２ｂ〕デバイス起動処理を行う。

〔Ｓ１０２ｃ〕デバイスの品質を通常状態にする。

〔Ｓ１０２ｄ〕ネットワーク切替え要求をネットワーク切替え制御部１３ｂへ通知し、ステップＳ１０１へ戻る。

〔Ｓ１０３ａ〕停止要求を受信した場合、デバイス状態が通常か否かを判断する。通常ならステップＳ１０１へ戻り、そうでなければステップＳ１０３ｂへいく。

〔Ｓ１０３ｂ〕デバイスの品質を停止予約状態にする。

〔Ｓ１０３ｃ〕ネットワーク切替え要求をネットワーク切替え制御部１３ｂへ通知し、ステップＳ１０１へ戻る。

〔Ｓ１０４〕切替え完了通知を受信した場合、停止予約状態のデバイスをすべて停止し、状態を停止にし、ステップＳ１０１へ戻る。

以上説明したように、上位アプリケーションからのインタフェースダウン（停止）処理が要求された場合に、対象となるインタフェースが接続されたネットワークが、カレントネットワークの場合は、即座にダウン（停止）処理を実施するのではなく、他のネットワークへのネットワーク切替処理及びハンドオーバ制御を実施し、処理完了後にダウン（停止）処理を実施する。これにより、モバイルノード１０が通信中であってもインタフェースダウン処理により、通信を中断することなく通信を継続することが可能になる。

次にリンクの切断・接続に伴う本発明のハンドオーバについて説明する。ネットワークの接続・切断の操作は、アプリケーション１５から可能であるが、本発明では、リンク切断が要求されて実際に切断する前にあらかじめネットワークを切替えてハンドオーバ処理を高速に行う。これにより、使用中ネットワークの停止に伴うパケットロスを減らすことができる。

また、ネットワークデバイスが切断状態にあるとき、リンク接続を要求された場合は、インタフェースの接続処理を実施した後に切替えを要求する。これはリンク接続処理が完了する前に切替え要求を送信すると、通信できないネットワークがデフォルトルートになりパケットの損失が発生する可能性があるためである。

図１８はリンク処理部１４ｃの動作を示すフローチャートである。

〔Ｓ１１１〕イベントを受信したか否かを判断する。受信した場合は、イベント種別で分岐する。

〔Ｓ１１２ａ〕起動要求を受信した場合、リンク状態が接続か否かを判断する。接続ならステップＳ１１１へ戻り、そうでなければステップＳ１１２ｂへいく。

〔Ｓ１１２ｂ〕リンク接続処理を行う。

〔Ｓ１１２ｃ〕リンク状態を通常状態にする。

〔Ｓ１１２ｄ〕ネットワーク切替え要求をネットワーク切替え制御部１３ｂへ通知し、ステップＳ１１１へ戻る。

〔Ｓ１１３ａ〕切断要求を受信した場合、リンク状態が接続か否かを判断する。接続ならステップＳ１１１へ戻り、そうでなければステップＳ１１３ｂへいく。

〔Ｓ１１３ｂ〕リンクの状態を切断予約状態にする。

〔Ｓ１１３ｃ〕ネットワーク切替え要求をネットワーク切替え制御部１３ｂへ通知し、ステップＳ１１１へ戻る。

〔Ｓ１１４〕切替え完了通知を受信した場合、切断予約状態のネットワークをすべて切断し、状態を切断にし、ステップＳ１１１へ戻る。

以上説明したように、上位アプリケーションからの電話切断等のリンク切断処理が要求された場合に、対象となるリンクが、カレントネットワークの場合は、即座にリンク切断処理を実施するのではなく、他のネットワークへのネットワーク切替え処理及びハンドオーバ制御を実施し、処理完了後にリンク切断処理を実

施する。これにより、モバイルノードが通信中であってもリンク切断処理により、通信を中断することなく通信を継続することが可能になる。

次にアクセスポイントを切替えることによる本発明のハンドオーバについて説明する。図１９はアクセスポイント切替えのハンドオーバを説明するための図である。無線ＬＡＮは、アクセスポイント５１、５２と接続する。最初、モバイルノード１０はアクセスポイント５１を介して通信を行っているとする。

アクセスポイント５１の電波強度が低下すると、モバイルノード１０は、ハンドオーバを行う。上述してきたハンドオーバでは、異種ネットワーク間のハンドオーバを対象にしたが、ここの例では同一のネットワーク内のアクセスポイントを切替えるものとする。

図の場合、アクセスポイント５１の電波強度が低下した場合には、切替え先をアクセスポイント５２にしてハンドオーバを行う。このように、接続中の無線通信の電波強度が弱まったとき、次の接続先メディア候補として無線ＬＡＮが選択された場合、現在接続の無線通信が接続不可となる前に接続可能なアクセスポイントを検索する。そして、接続中の無線通信との接続が維持できなくなった際、事前に検索しておいたアクセスポイントへ瞬時にハンドオーバを実現し通信を継続する。なお、このようなアクセスポイントのハンドオーバの詳細制御は、異種ネットワーク間のハンドオーバ制御と同様であるため、詳細制御の説明は省略する。

また、上記の例では、同一の無線ＬＡＮにおけるアクセスポイントの切替えについて示したが、異なる無線ＬＡＮ間でアクセスポイントの切替えを行ってもよい（例えば、無線ＬＡＮ５ａ上のアクセスポイント５１ａから無線ＬＡＮ５ｂ上のアクセスポイント５１ｂへの切替え）。

以上説明したように、本発明によれば、モバイルＩＰネットワーク上でのハンドオーバにおいて、ネットワークとの通信中断時間が皆無となるのでパケットロスの発生をなくすことができる。したがって、音声や画像などのＩＰ通信が途切れることなく、ネットワークのシームレスなハンドオーバをユーザに提供することが可能になる。

例えば、ユーザが本発明の機能を実装したＩＰ電話を用いて、通話を行ってい

る場合にネットワーク切替えに伴う通信中断をユーザに意識させることがない。また、ユーザが動画などのストリーミングデータを見ながら移動している場合にも、ネットワーク切替えに伴う動画の停止等が起きない。

さらに、本発明によれば、電波強度／無線帯域のそれぞれの閾値に対して、低下閾値及び復旧閾値を設け、ネットワークの切替え制御を行うことにより、安定した状態でのネットワーク接続を制御することができる。このため、無線ネットワークの境界付近等の電波強度が変化する領域であっても、ネットワークのバタツキ及びそれに伴うノイズの発生を最小限に抑えることができ、安定した品質のよい通信をユーザに提供することが可能になる。

以上説明したように、本発明のモバイルノードは、ネットワーク品質の状態に応じて、通信が切断される前に、気付アドレスをアドレス登録先へ送信して、通信情報の経路を変更し、あらたなネットワークに接続先を切替えるためのハンドオーバを行い、気付アドレスがアドレス登録先で更新され、通信が切断されるまでは、切替え前のネットワークとの受信機能を維持する構成とした。これにより、通信中断時間を皆無とし、また通信の継続性を良好に維持することができるので、モバイルＩＰネットワーク上での通信品質の向上を図ることが可能になる。

上記については単に本発明の原理を示すものである。さらに、多数の変形、変更が当業者にとって可能であり、本発明は上記に示し、説明した正確な構成および応用例に限定されるものではなく、対応するすべての変形例および均等物は、添付の請求項およびその均等物による本発明の範囲とみなされる。

請 求 の 範 囲

1． モバイルＩＰネットワーク上で通信を行うモバイルノードにおいて、

ネットワークと接続するインタフェース機能を有するネットワークデバイスと、

前記ネットワークデバイスが受信する電波強度または無線帯域の少なくとも一方にもとづいて、ネットワーク品質を監視するネットワーク品質監視部と、

ネットワーク品質の状態に応じて、通信が切断される前に、気付アドレスをアドレス登録先へ送信して、通信情報の経路を変更し、あらたなネットワークに接続先を切替えるためのハンドオーバを行うハンドオーバ制御部と、

前記気付アドレスがアドレス登録先で更新されたことを示す応答を受信し、通信が切断されるまでは、切替え前のネットワークとの受信機能を維持するネットワーク制御部と、

を有することを特徴とするモバイルノード。

2． 前記ネットワーク品質監視部は、現在通信しているネットワークのネットワーク品質の低下を認識すると、前記ハンドオーバ制御部は、あらたなネットワークへ接続先を切替えることを特徴とする請求の範囲第１項記載のモバイルノード。

3． 前記ネットワーク品質監視部は、切替え前のネットワークのネットワーク品質が復旧したことを認識すると、前記ハンドオーバ制御部は、元の切替え前のネットワークに接続先を戻すことを特徴とする請求の範囲第１項記載のモバイルノード。

4． 前記ハンドオーバ制御部は、ネットワーク接続の優先順位を記憶し、ネットワーク品質の変化に応じて、優先順位の高いネットワークへハンドオーバを行うことを特徴とする請求の範囲第１項記載のモバイルノード。

5． 前記ネットワーク品質監視部は、電波の品質低下を検出するための低下閾値と、品質復旧を検出するための復旧閾値とを有し、前記ハンドオーバ制御部は、受信する電波の品質が低下閾値を下回った場合には、ネットワーク品質低下に伴うハンドオーバを行い、受信する電波の品質が復旧閾値を上回った場合には、ネットワーク復旧に伴うハンドオーバを行うことを特徴とする請求の範囲第１項記

載のモバイルノード。

６． 前記ネットワーク品質監視部は、受信する電波の品質が低下閾値を一定時間安定して下回った場合に、ネットワーク品質の低下と認識してハンドオーバ要求を出力し、受信する電波の品質が復旧閾値を一定時間安定して上回った場合に、ネットワーク復旧と認識してハンドオーバ要求を出力することを特徴とする請求の範囲第５項記載のモバイルノード。

７． 前記ネットワーク品質監視部は、急激劣化閾値を有し、受信する電波が前記急激劣化閾値を下回った場合には、ネットワーク品質の低下と認識して即時にハンドオーバ要求を出力し、前記ハンドオーバ制御部は、ハンドオーバを行うことを特徴とする請求の範囲第１項記載のモバイルノード。

８． 前記ネットワーク品質監視部は、現在利用可能な無線帯域の不足を検出するための不足閾値と、無線帯域不足の復旧を検出するための復旧閾値とを有し、前記ハンドオーバ制御部は、無線帯域が不足閾値を下回った場合には、ネットワーク品質低下に伴うハンドオーバを行い、無線帯域が復旧閾値を上回った場合には、ネットワーク復旧に伴うハンドオーバを行うことを特徴とする請求の範囲第１項記載のモバイルノード。

９． 前記ネットワーク品質監視部は、固定または可変に設定された周期でのネットワーク品質の監視、またはパケット受信を契機としたネットワーク品質の監視の少なくとも一方を行うことを特徴とする請求の範囲第１項記載のモバイルノード。

１０． 前記ネットワーク制御部が、前記ネットワークデバイスの停止要求を検出した場合は、前記ハンドオーバ制御部は、前記ネットワークデバイスが停止する前にハンドオーバを行い、前記ネットワーク制御部が、前記ネットワークデバイスの起動要求を検出した場合は、前記ハンドオーバ制御部は、前記ネットワークデバイスの起動処理完了後にハンドオーバを行うことを特徴とする請求の範囲第１項記載のモバイルノード。

１１． 前記ネットワーク制御部が、前記ネットワークデバイスが使用するネットワークとのリンクの切断要求を検出した場合、前記ハンドオーバ制御部は、リンクが切断する前にハンドオーバを行い、前記ネットワーク制御部が前記ネット

ワークデバイスの接続要求を検出した場合は、前記ハンドオーバ制御部は、前記ネットワークデバイスの接続処理完了後にハンドオーバを行うことを特徴とする請求の範囲第１項記載のモバイルノード。

１２．　前記ネットワーク品質監視部は、ネットワーク品質と優先度とに重み付けして算出したネットワーク品質指標を管理し、前記ハンドオーバ制御部は前記ネットワーク品質指標にもとづき、ハンドオーバを行うことを特徴とする請求の範囲第１項記載のモバイルノード。

１３．　ネットワークに第１のアクセスポイントと第２のアクセスポイントが存在する際に、前記ネットワーク品質監視部は、現在通信中の第１のアクセスポイントからのネットワーク品質の低下を認識し、かつ第２のアクセスポイントのネットワーク品質から第２のアクセスポイントとの接続を可能と判断した場合は、前記ハンドオーバ制御部は、第１のアクセスポイントから第２のアクセスポイントへのハンドオーバを行うことを特徴とする請求の範囲第１項記載のモバイルノード。

１４．　モバイルＩＰネットワーク上での通信に対してハンドオーバを行うハンドオーバ方法において、

モバイルノードが複数のインタフェースのネットワークデバイスを実装し、モバイルノードが複数のネットワーク間を移動する場合であって、

前記ネットワークデバイスが受信する電波強度または無線帯域の少なくとも一方にもとづいて、ネットワーク品質を監視し、

ネットワーク品質の状態に応じて、通信が切断される前に、気付アドレスをアドレス登録先へ送信し、

前記気付アドレスがアドレス登録先で更新されたことを示す応答を受信し、通信が切断されるまでは、切替え前のネットワークとの受信機能を維持し、

前記気付アドレスの送信後に、通信情報の経路を変更し、あらたなネットワークに接続先を切替えるためのハンドオーバを行うことを特徴とするハンドオーバ方法。

１５．　現在通信しているネットワークのネットワーク品質の低下を認識すると、あらたなネットワークへ接続先を切替えることを特徴とする請求の範囲第１４項

記載のハンドオーバ方法。

１６．　切替え前のネットワークのネットワーク品質が復旧したことを認識すると、元の切替え前のネットワークに接続先を戻すことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

１７．　ネットワーク接続の優先順位を記憶し、ネットワーク品質の変化に応じて、優先順位の高いネットワークへハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

１８．　電波の品質低下を検出するための低下閾値と、品質復旧を検出するための復旧閾値とを有し、受信する電波の品質が低下閾値を下回った場合には、ネットワーク品質低下に伴うハンドオーバを行い、受信する電波の品質が復旧閾値を上回った場合には、ネットワーク復旧に伴うハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

１９．　受信する電波の品質が低下閾値を一定時間安定して下回った場合に、ネットワーク品質の低下と認識してハンドオーバを行い、受信する電波の品質が復旧閾値を一定時間安定して上回った場合に、ネットワーク復旧と認識してハンドオーバを行うことを特徴とする請求の範囲第１８項記載のハンドオーバ方法。

２０．　急激劣化閾値を有し、受信する電波が前記急激劣化閾値を下回った場合には、ネットワーク品質の低下と認識して、即時にハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

２１．　現在利用可能な無線帯域の不足を検出するための不足閾値と、無線帯域不足の復旧を検出するための復旧閾値とを有し、無線帯域が不足閾値を下回った場合には、ネットワーク品質低下に伴うハンドオーバを行い、無線帯域が復旧閾値を上回った場合には、ネットワーク復旧に伴うハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

２２．　固定または可変に設定された周期でのネットワーク品質の監視、またはパケット受信を契機としたネットワーク品質の監視の少なくとも一方を行うことを特徴とする請求の範囲第1.4項記載のハンドオーバ方法。

２３．　前記ネットワークデバイスの停止要求を検出した場合は、前記ネットワークデバイスが停止する前にハンドオーバを行い、前記ネットワークデバイスの

起動要求を検出した場合は、前記ネットワークデバイスの起動処理完了後にハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

２４．　前記ネットワークデバイスが使用するネットワークとのリンクの切断要求を検出した場合は、リンクが切断する前にハンドオーバを行い、前記ネットワークデバイスの接続要求を検出した場合は、前記ネットワークデバイスの接続処理完了後にハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

２５．　ネットワーク品質と優先度とに重み付けして算出したネットワーク品質指標にもとづき、ハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

２６．　ネットワークに第１のアクセスポイントと第２のアクセスポイントが存在する際に、現在通信中の第１のアクセスポイントからのネットワーク品質の低下を認識し、かつ第２のアクセスポイントのネットワーク品質から第２のアクセスポイントとの接続を可能と判断した場合は、第１のアクセスポイントから第２のアクセスポイントへのハンドオーバを行うことを特徴とする請求の範囲第１４項記載のハンドオーバ方法。

２７．　モバイルＩＰネットワーク上で通信を行うモバイルＩＰシステムにおいて、

ネットワークと接続するインタフェース機能を有するネットワークデバイスと、前記ネットワークデバイスが受信する電波強度または無線帯域の少なくとも一方にもとづいて、ネットワーク品質を監視するネットワーク品質監視部と、ネットワーク品質の状態に応じて、通信が切断される前に、気付アドレスをアドレス登録先へ送信して、通信情報の経路を変更し、あらたな第１のネットワークに接続先を切替えるためのハンドオーバを行うハンドオーバ制御部と、前記気付アドレスがアドレス登録先で更新されたことを示す応答を受信し、通信が切断されるまでは、切替え前の第２のネットワークとの受信機能を維持するネットワーク制御部と、から構成されるモバイルノードと、

前記気付アドレスを受信し、前記モバイルノード宛の情報の配信及び位置を認識するホームエージェントと、

前記気付アドレスを受信するデフォルトルータと接続し、通信が切断されるまでは、第２のネットワークを介して通信情報を送信し、ハンドオーバ処理後、第１のネットワークを介して前記モバイルノードと通信を行うコレスポンデント・ノードと、

を有することを特徴とするモバイルＩＰシステム。

２８．　モバイルＩＰネットワーク上で通信を行うモバイルノードにおいて、

複数の異なるモバイルＩＰネットワークと通信可能なインタフェース機能を有するネットワークデバイスと、

前記ネットワークデバイスを介して、複数のモバイルＩＰネットワークの各品質状態に応じて、現在の通信しているモバイルＩＰネットワークから他方のモバイルＩＰネットワークに切替えを行うハンドオーバ制御部と、

を有することを特徴とするモバイルノード。

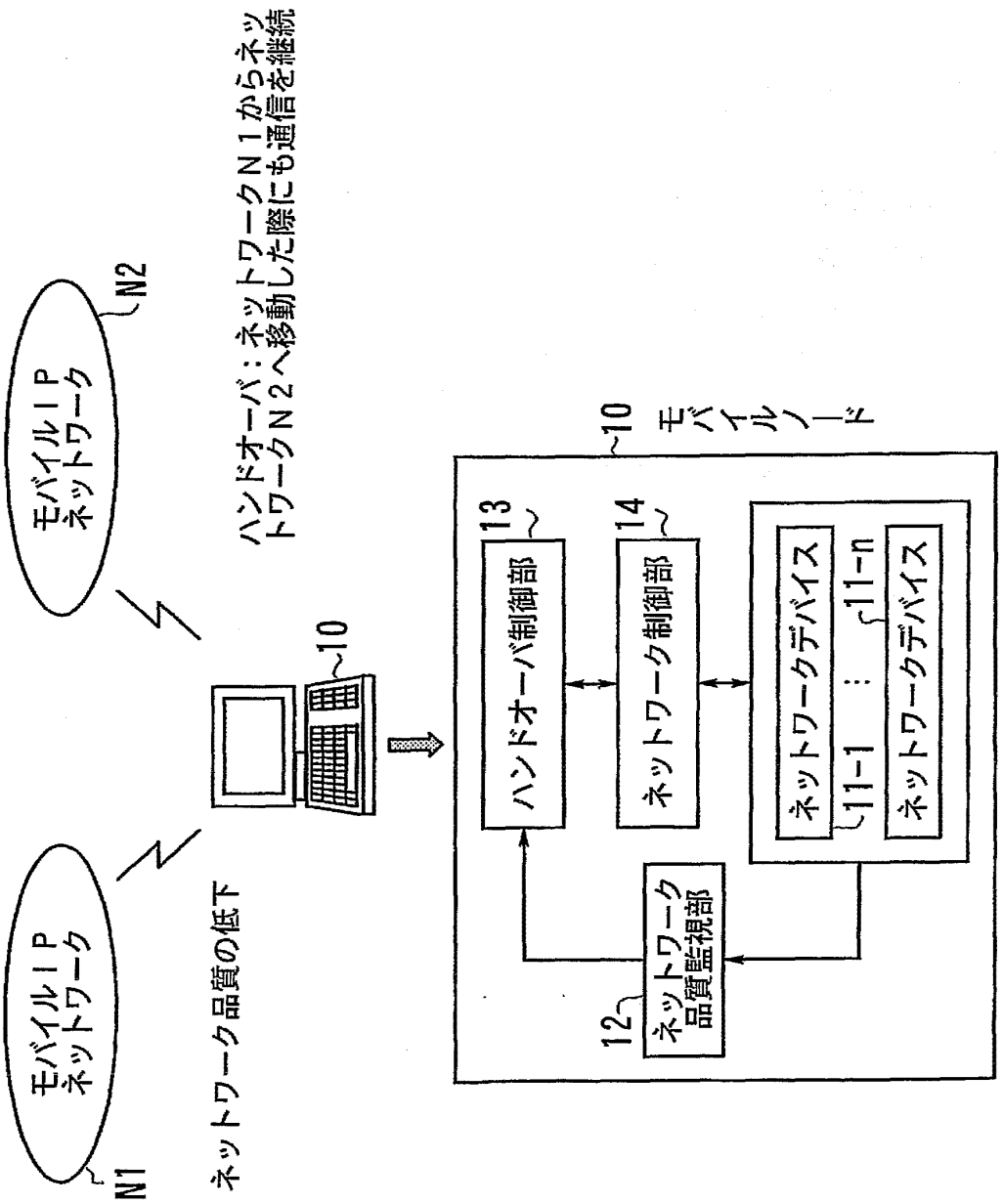

モバイルＩＰ
ネットワーク
N1
N2
ネットワーク品質の低下
ハンドオーバ：ネットワークＮ１からネットワークＮ２へ移動した際にも通信を継続
10
モバイルノード
13
ハンドオーバ制御部
14
ネットワーク制御部
ネットワークデバイス
11-1
11-n
ネットワークデバイス
12
ネットワーク品質監視部

図１

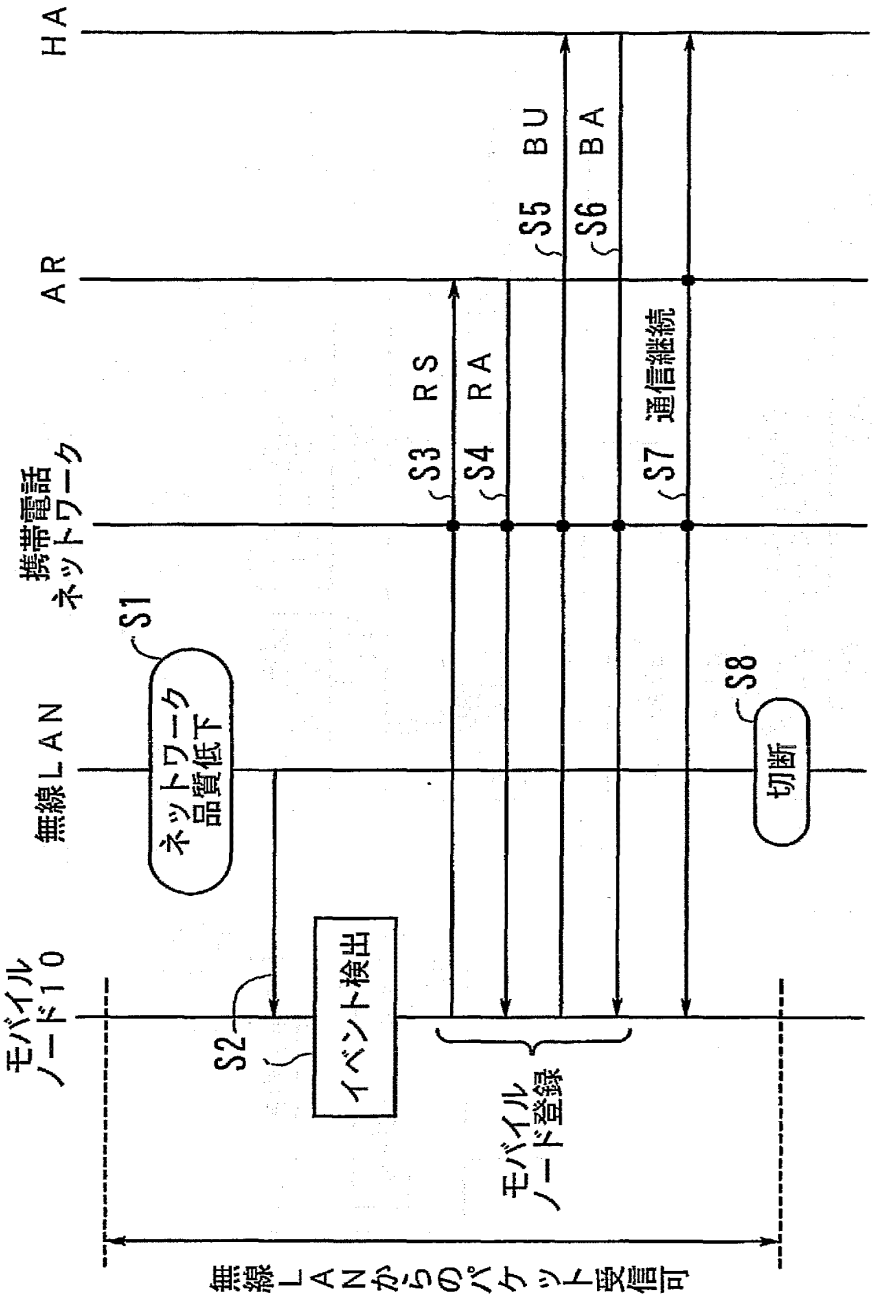

HA
AR
携帯電話ネットワーク
無線LAN
モバイルノード10
S1
ネットワーク品質低下
S2
イベント検出
S3 RS
S4 RA
S5 BU
S6 BA
S7 通信継続
S8
切断
モバイルノード登録
無線LANからのパケット受信可

図2

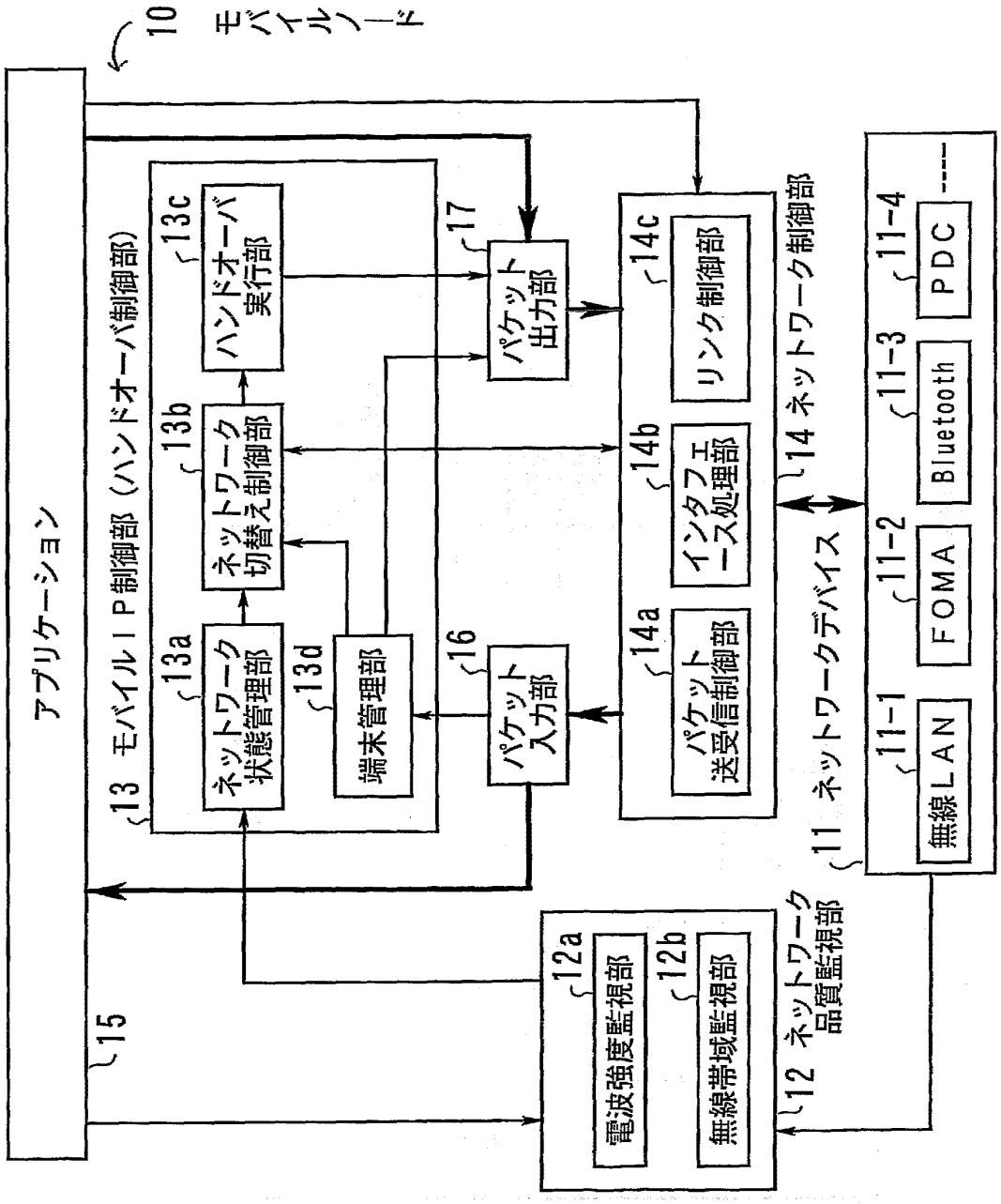

10 モバイルノード
アプリケーション
13 モバイルIP制御部（ハンドオーバ制御部）
13a ネットワーク状態管理部
13b ネットワーク切替え制御部
13c ハンドオーバ実行部
13d 端末管理部
16 パケット入力部
17 パケット出力部
14a パケット送受信制御部
14b インタフェース処理部
14c リンク制御部
14 ネットワーク制御部
11 ネットワークデバイス
11-1 無線LAN
11-2 FOMA
11-3 Bluetooth
11-4 PDC
12 ネットワーク品質監視部
12a 電波強度監視部
12b 無線帯域監視部
15

図3

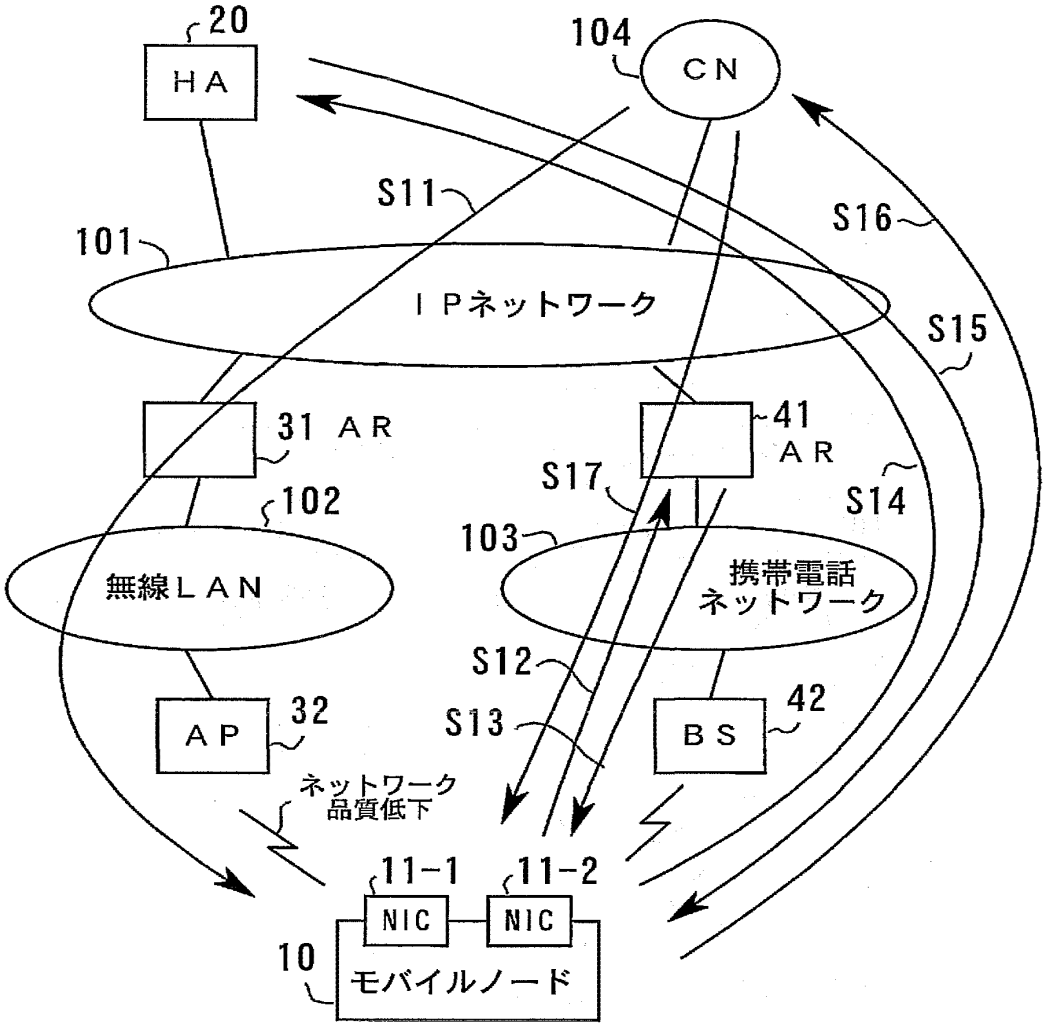

20
HA
104
CN
S11
S16
101
IPネットワーク
S15
31 AR
41
AR
S17
S14
102
103
無線LAN
携帯電話
ネットワーク
S12
S13
AP
32
BS
42
ネットワーク
品質低下
11-1
11-2
NIC
NIC
10
モバイルノード

図 4

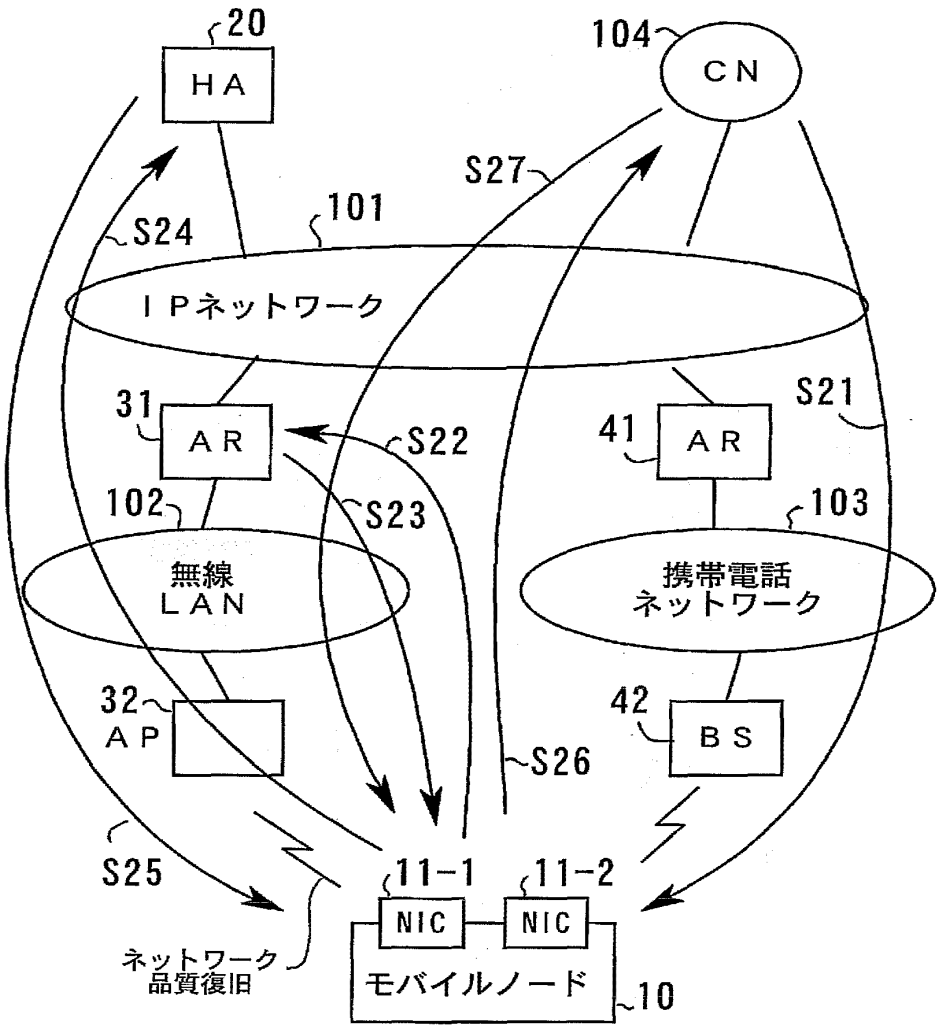

20
HA
104
CN
S27
S24
101
IPネットワーク
31
AR
S22
41
AR
S21
102
S23
103
無線
LAN
携帯電話
ネットワーク
32
AP
42
BS
S26
S25
11-1
11-2
NIC
NIC
ネットワーク
品質復旧
モバイルノード
10

図 5

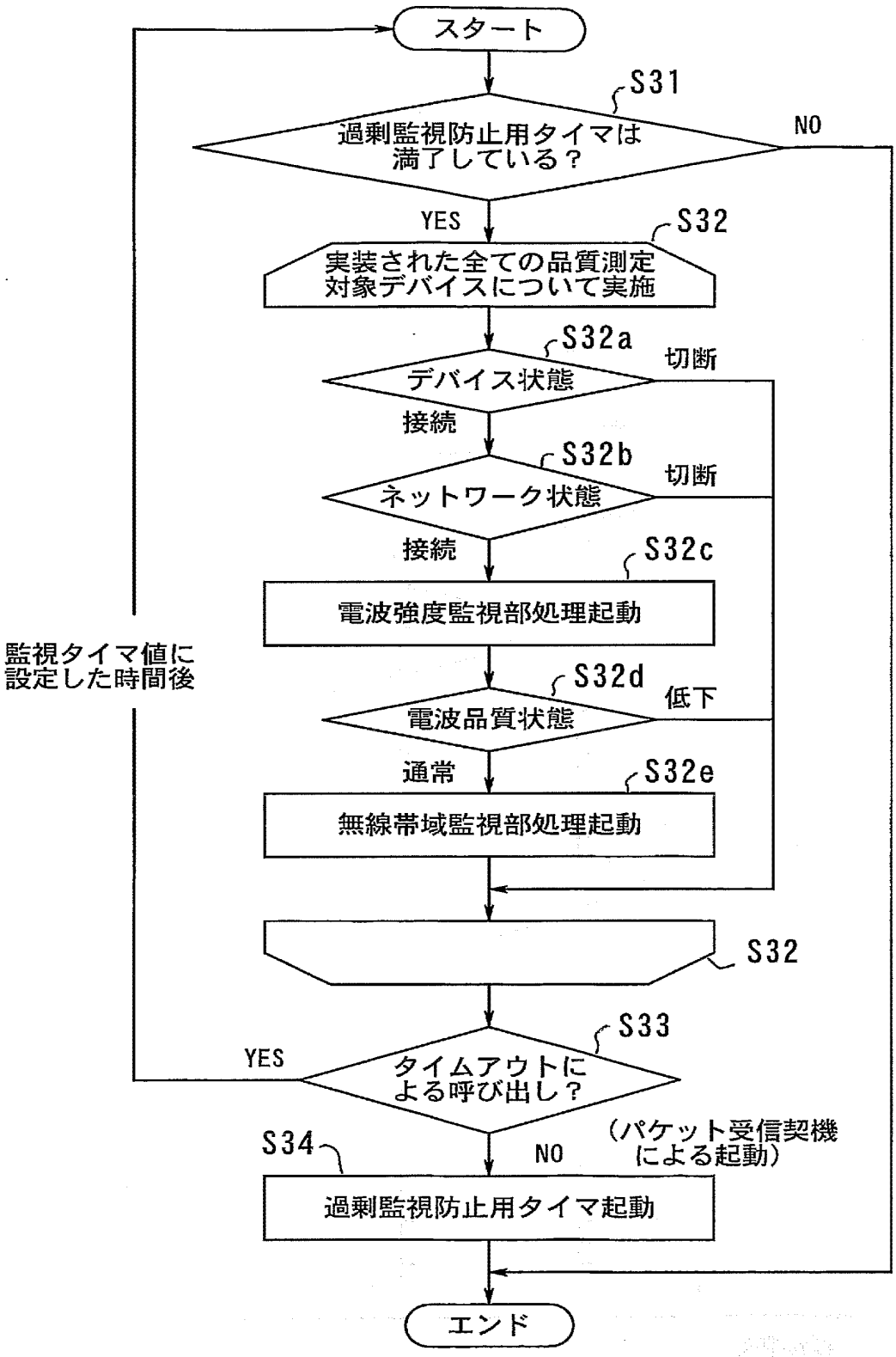

スタート
S31
過剰監視防止用タイマは満了している？
NO
YES
S32
実装された全ての品質測定対象デバイスについて実施
S32a
デバイス状態
切断
接続
S32b
ネットワーク状態
切断
接続
S32c
電波強度監視部処理起動
S32d
電波品質状態
低下
通常
S32e
無線帯域監視部処理起動
S32
S33
タイムアウトによる呼び出し？
YES
監視タイマ値に設定した時間後
S34
NO
（パケット受信契機による起動）
過剰監視防止用タイマ起動
エンド

図６

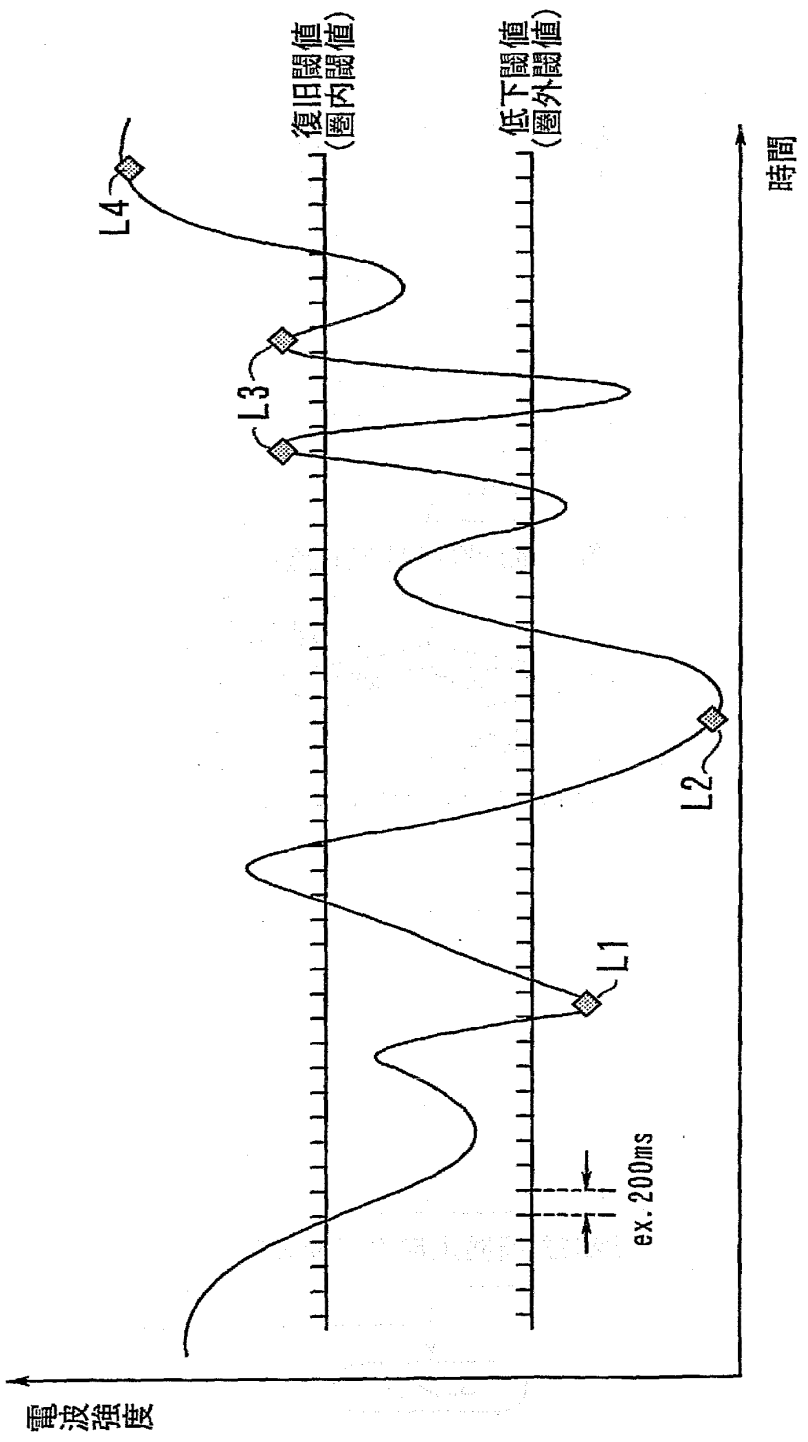


図7

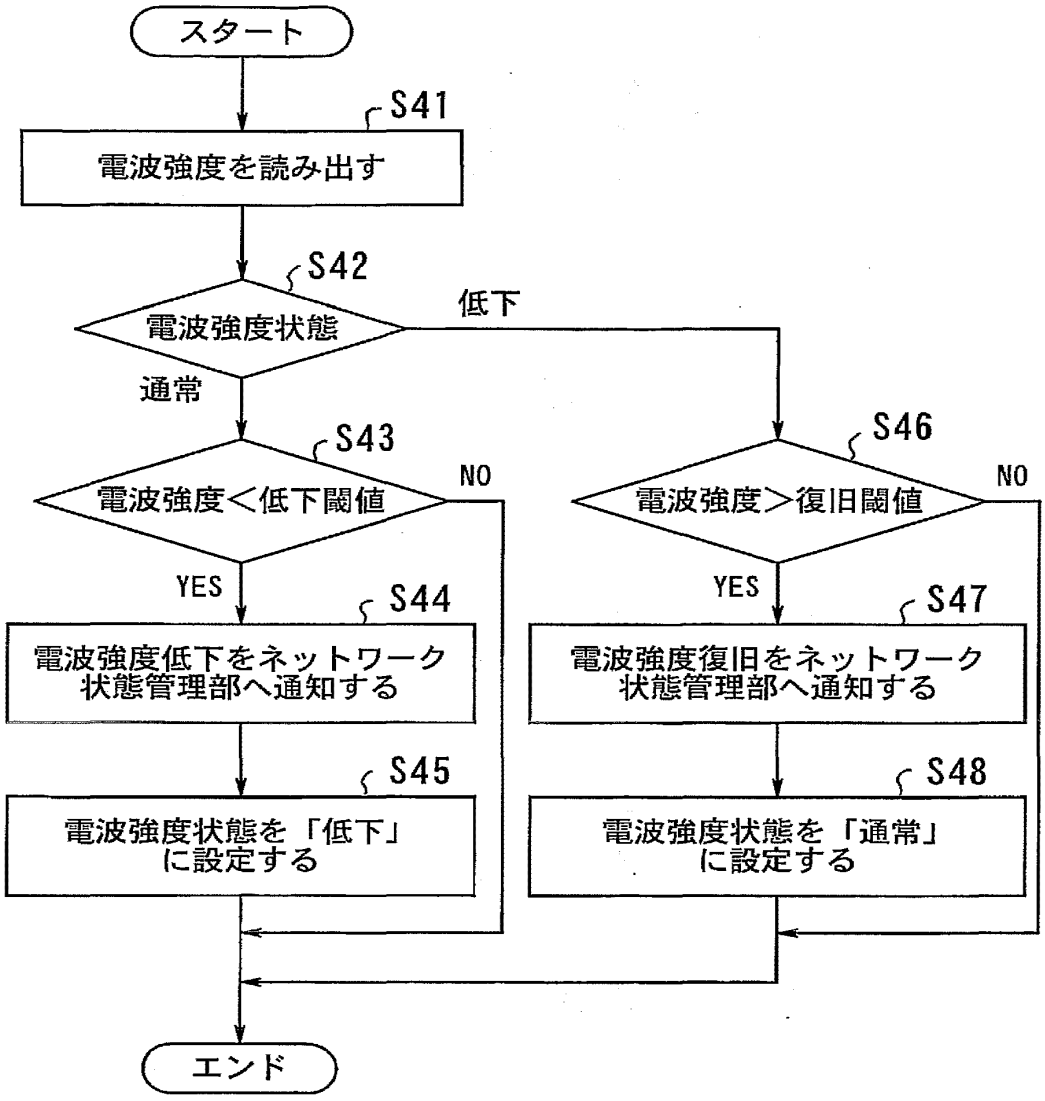

スタート
S41
電波強度を読み出す
S42
電波強度状態
低下
通常
S43
電波強度＜低下閾値
NO
YES
S44
電波強度低下をネットワーク状態管理部へ通知する
S45
電波強度状態を「低下」に設定する
S46
電波強度＞復旧閾値
NO
YES
S47
電波強度復旧をネットワーク状態管理部へ通知する
S48
電波強度状態を「通常」に設定する
エンド

図８

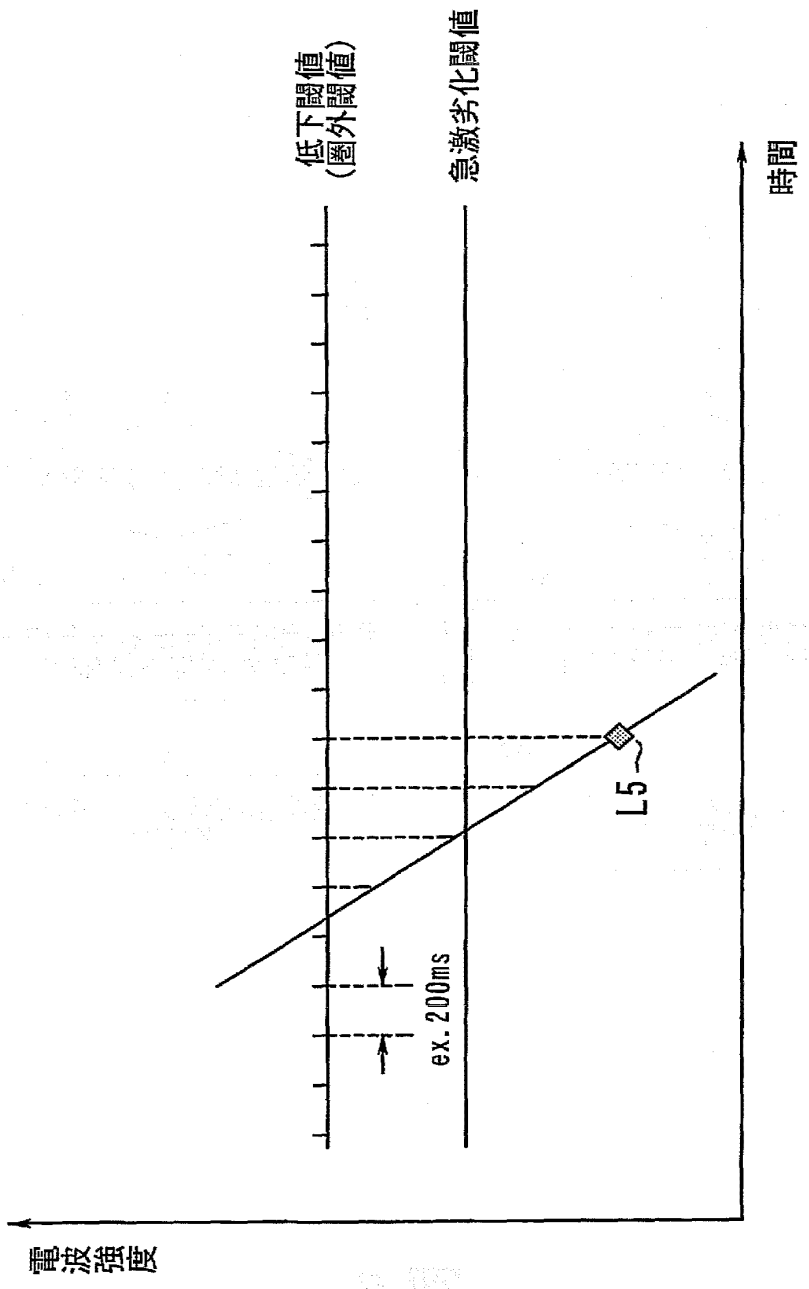


図9

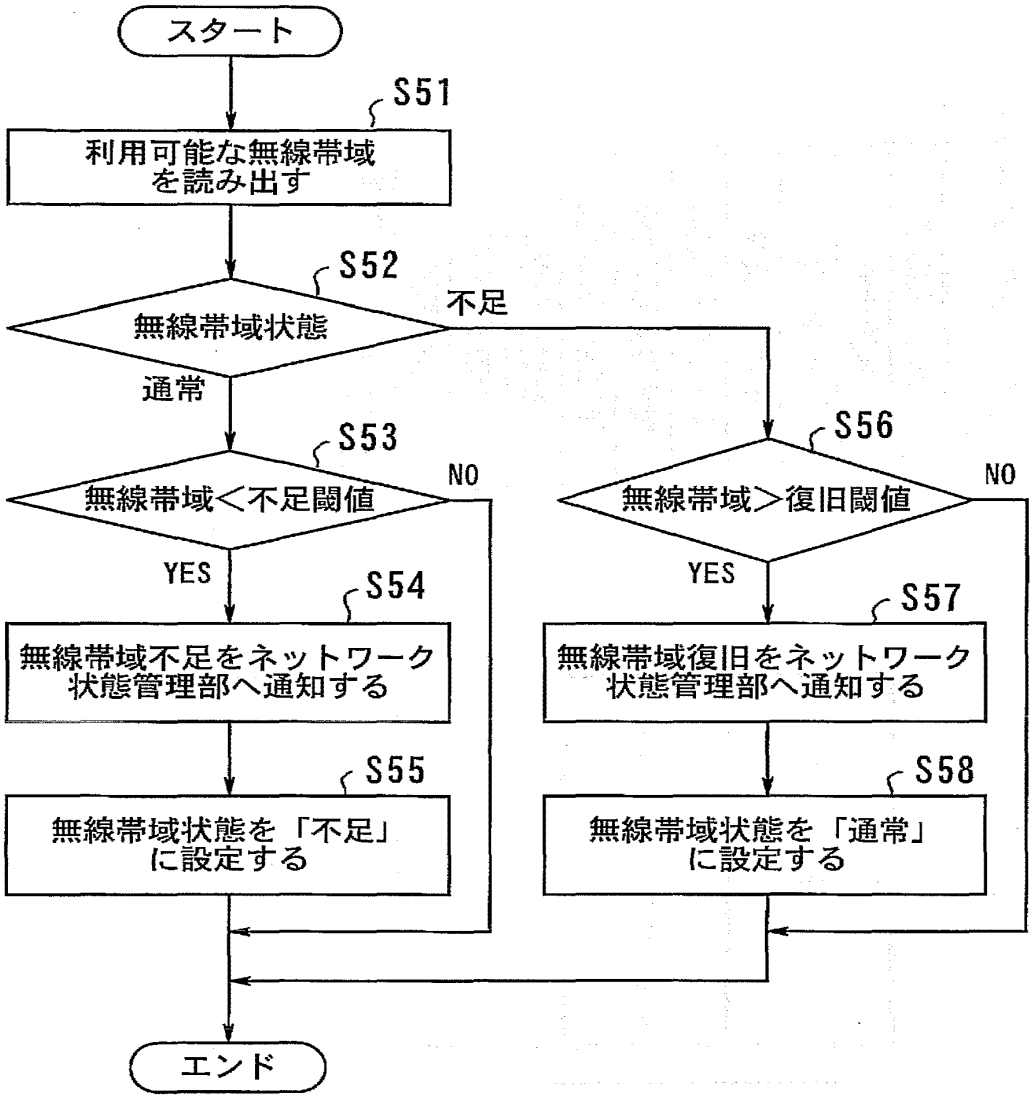
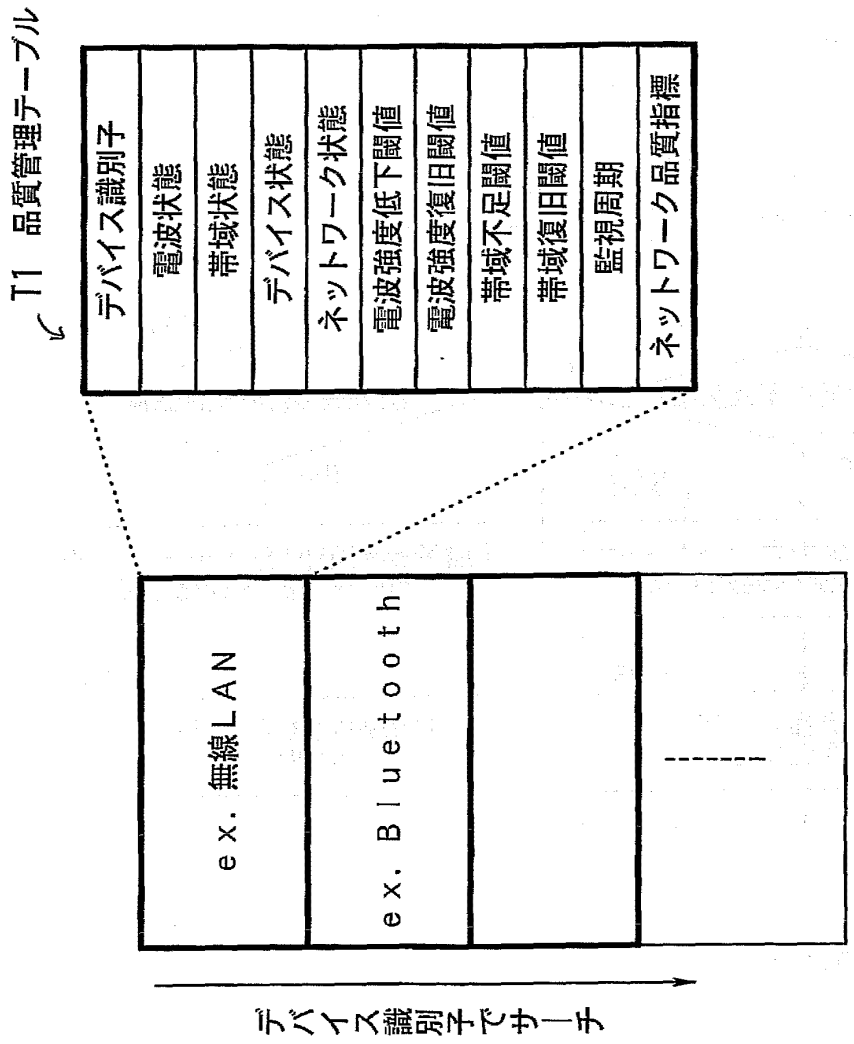

スタート
S51
利用可能な無線帯域を読み出す
S52
無線帯域状態
不足
通常
S53
無線帯域＜不足閾値
NO
YES
S54
無線帯域不足をネットワーク状態管理部へ通知する
S55
無線帯域状態を「不足」に設定する
S56
無線帯域＞復旧閾値
NO
YES
S57
無線帯域復旧をネットワーク状態管理部へ通知する
S58
無線帯域状態を「通常」に設定する
エンド

図１０


T1 品質管理テーブル
デバイス識別子
電波状態
帯域状態
デバイス状態
ネットワーク状態
電波強度低下閾値
電波強度復旧閾値
帯域不足閾値
帯域復旧閾値
監視周期
ネットワーク品質指標
ex. 無線LAN
ex. Bluetooth

デバイス識別子データ

図11

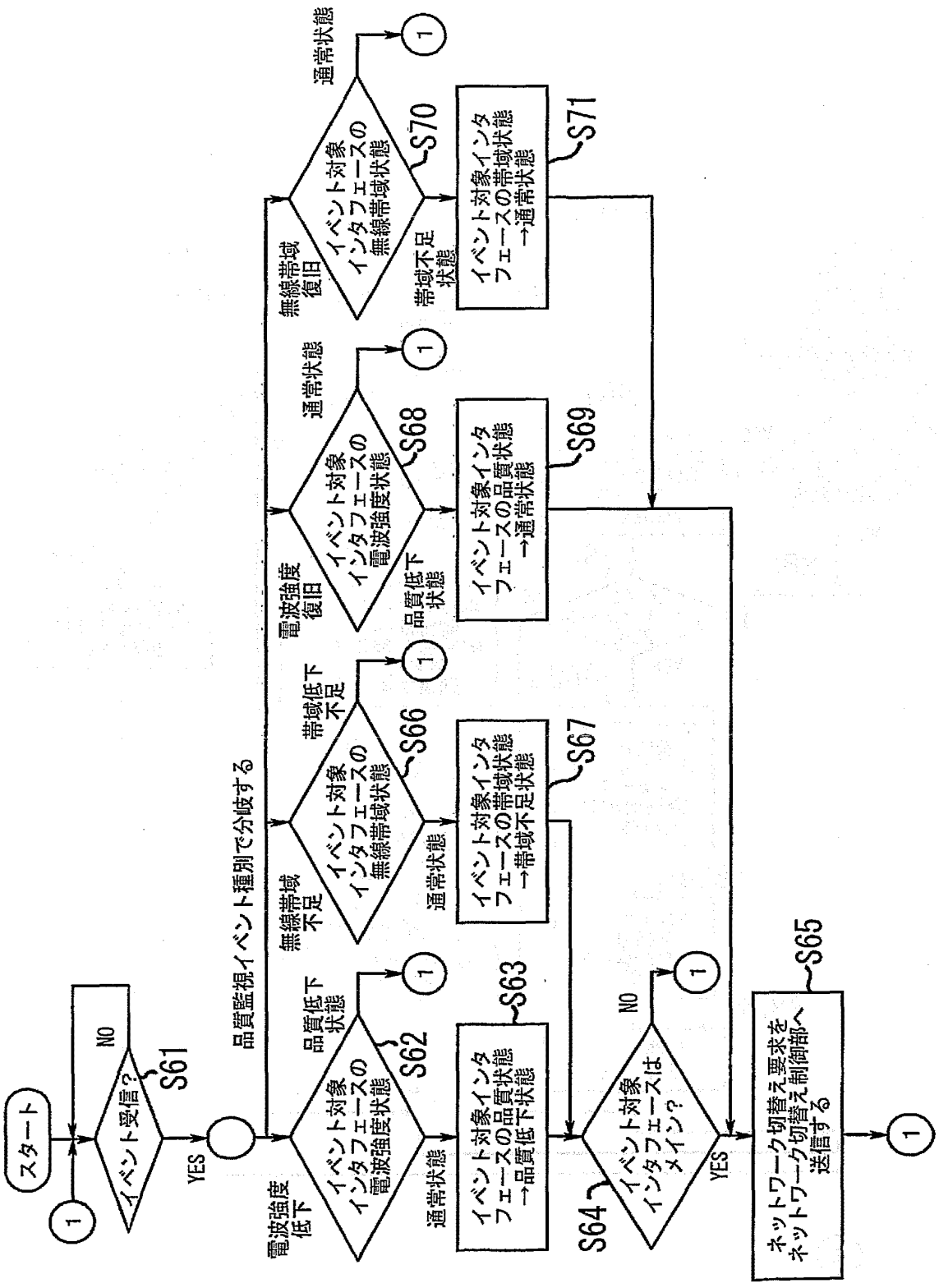

スタート
イベント受信?
S61
NO
YES
品質監視イベント種別で分岐する
電波強度低下
イベント対象インタフェースの電波強度状態
S62
品質低下状態
通常状態
イベント対象インタフェースの品質状態→品質低下状態
S63
無線帯域不足
イベント対象インタフェースの無線帯域状態
S66
帯域低下不足
通常状態
イベント対象インタフェースの帯域状態→帯域不足状態
S67
電波強度復旧
イベント対象インタフェースの電波強度状態
S68
通常状態
品質低下状態
イベント対象インタフェースの品質状態→通常状態
S69
無線帯域復旧
イベント対象インタフェースの無線帯域状態
S70
通常状態
帯域不足状態
イベント対象インタフェースの帯域状態→通常状態
S71
S64
イベント対象インタフェースはメイン?
NO
YES
S65
ネットワーク切替え要求をネットワーク切替え制御部へ送信する
1

図12

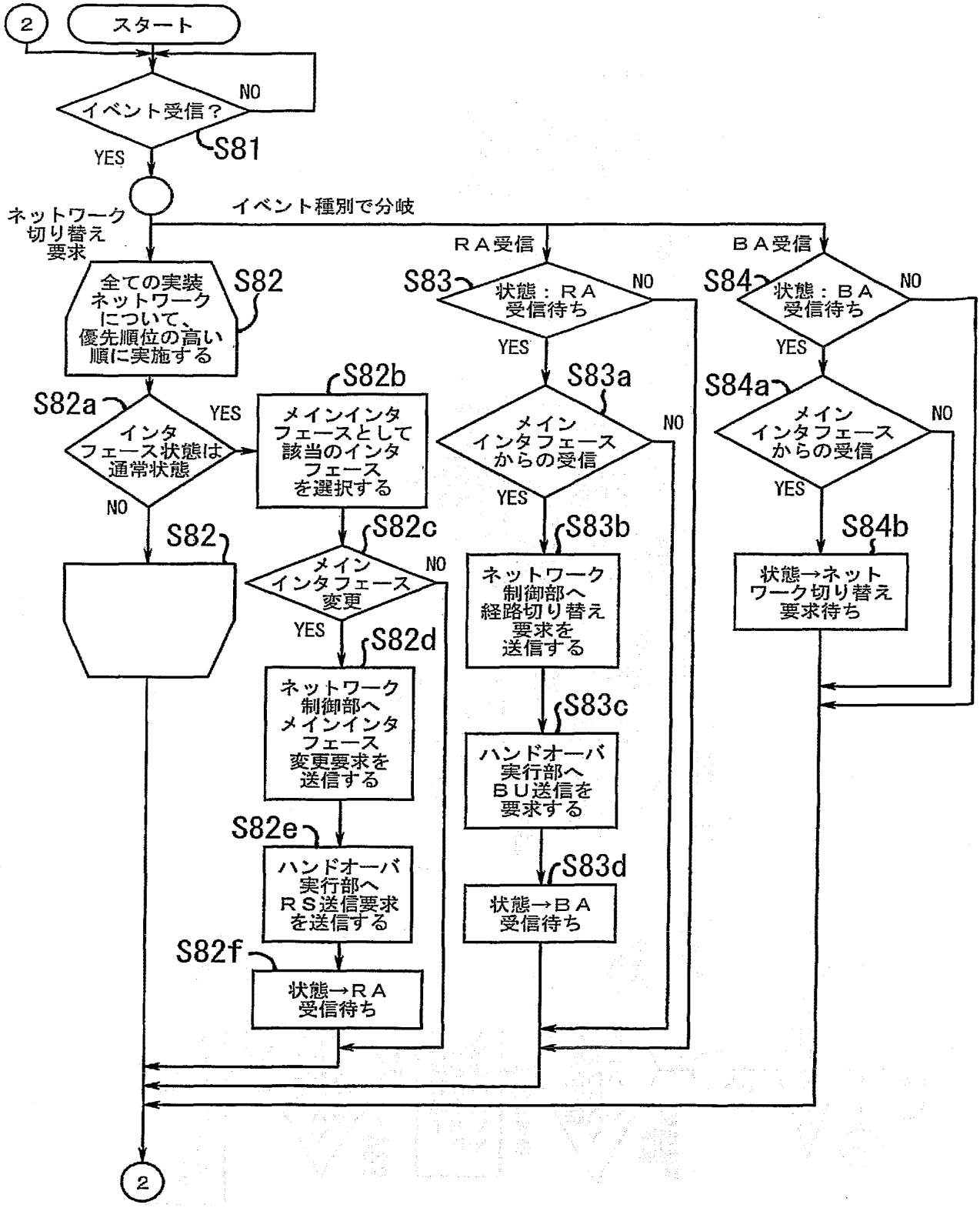


図１３

差替え用紙（規則26）

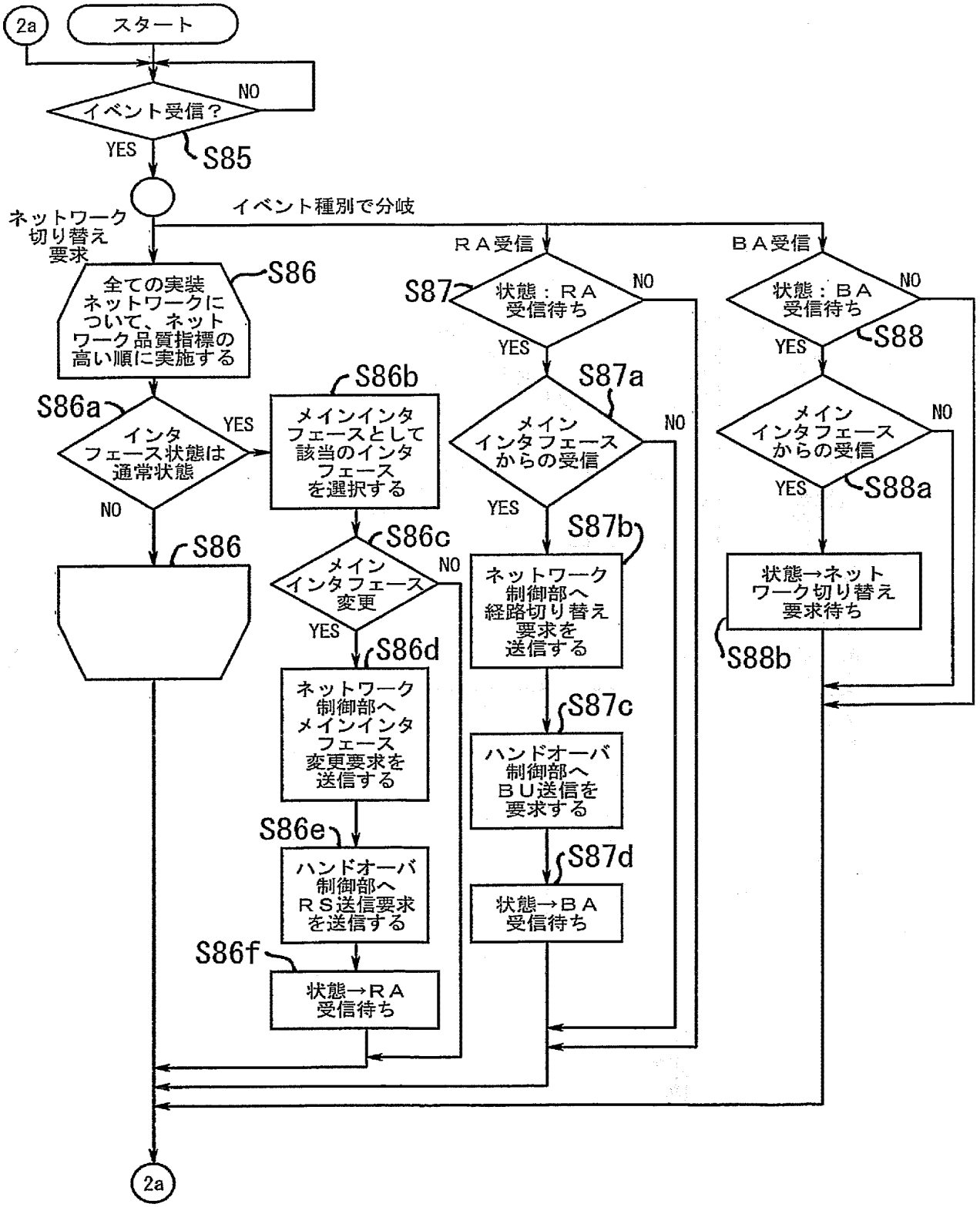

2a
スタート
NO
イベント受信？
YES
S85
ネットワーク
切り替え
要求
イベント種別で分岐
ＲＡ受信
ＢＡ受信
全ての実装
ネットワークに
ついて、ネット
ワーク品質指標の
高い順に実施する
S86
S86a
インタ
フェース状態は
通常状態
YES
NO
S86b
メインインタ
フェースとして
該当のインタ
フェース
を選択する
S86c
メイン
インタフェース
変更
NO
YES
S86d
ネットワーク
制御部へ
メインインタ
フェース
変更要求を
送信する
S86e
ハンドオーバ
制御部へ
ＲＳ送信要求
を送信する
S86f
状態→ＲＡ
受信待ち
S87
状態：ＲＡ
受信待ち
NO
YES
S87a
メイン
インタフェース
からの受信
NO
YES
S87b
ネットワーク
制御部へ
経路切り替え
要求を
送信する
S87c
ハンドオーバ
制御部へ
ＢＵ送信を
要求する
S87d
状態→ＢＡ
受信待ち
状態：ＢＡ
受信待ち
NO
YES
S88
メイン
インタフェース
からの受信
NO
YES
S88a
状態→ネット
ワーク切り替え
要求待ち
S88b
2a

図１４

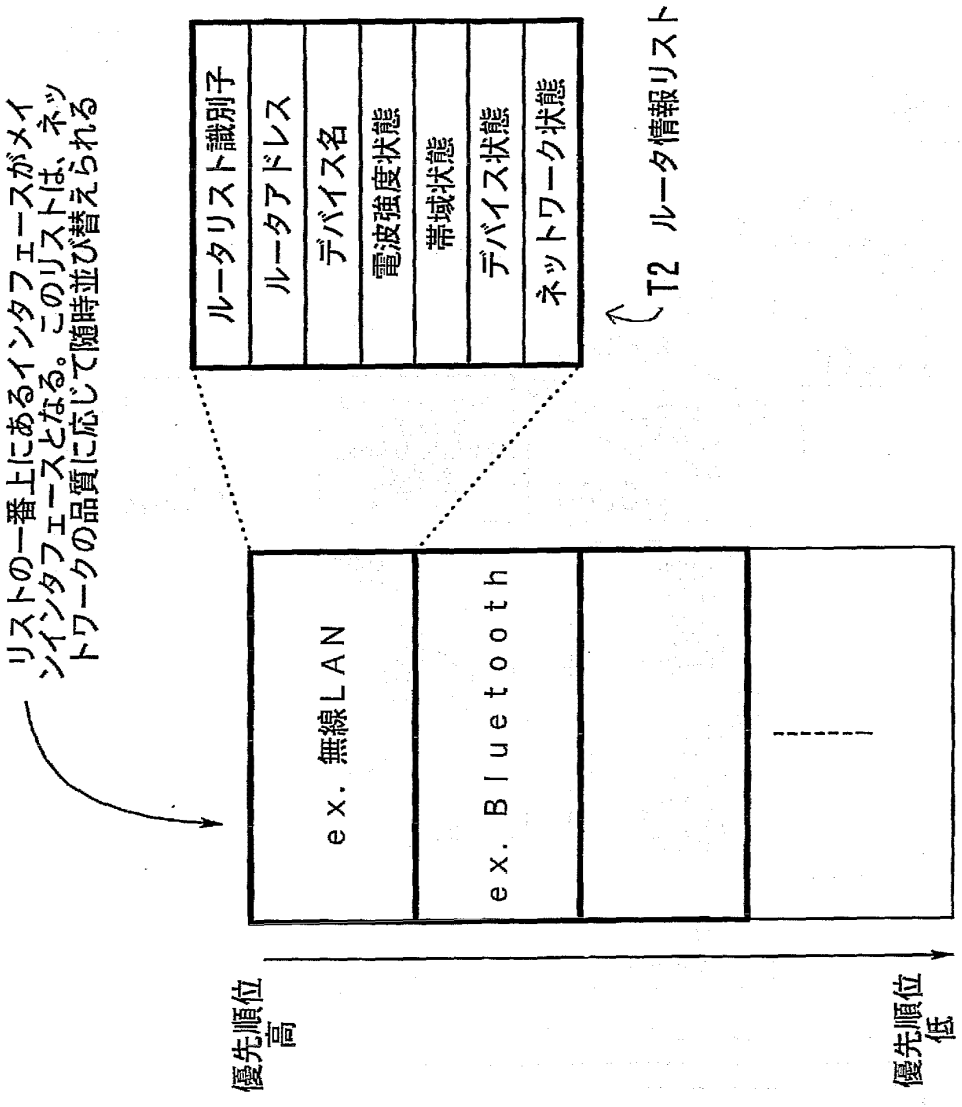

リストの一番上にあるインタフェースがメインインタフェースとなる。このリストは、ネットワークの品質に応じて随時並び替えられる
ルータリスト識別子
ルータアドレス
デバイス名
電波強度状態
帯域状態
デバイス状態
ネットワーク状態
T2 ルータ情報リスト
ex. 無線LAN
ex. Bluetooth
優先順位高
優先順位低

図15

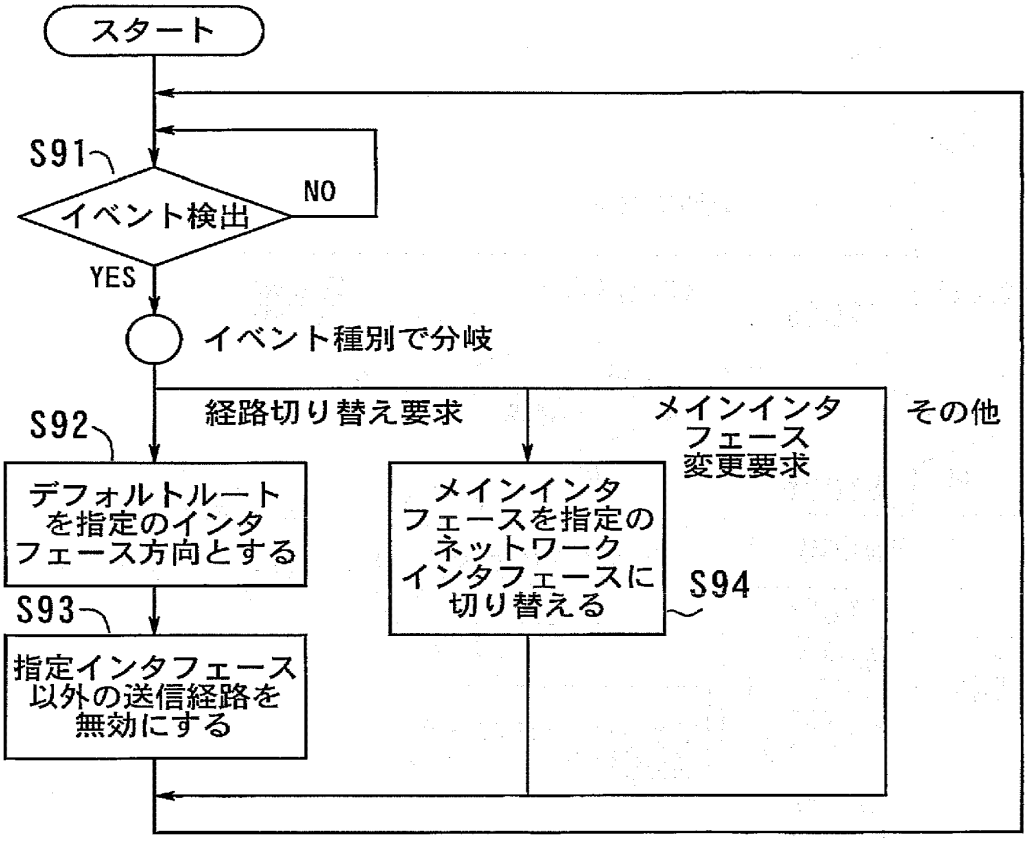

スタート
S91
イベント検出
NO
YES
イベント種別で分岐
経路切り替え要求
メインインタフェース変更要求
その他
S92
デフォルトルートを指定のインタフェース方向とする
S93
指定インタフェース以外の送信経路を無効にする
メインインタフェースを指定のネットワークインタフェースに切り替える
S94

図１６

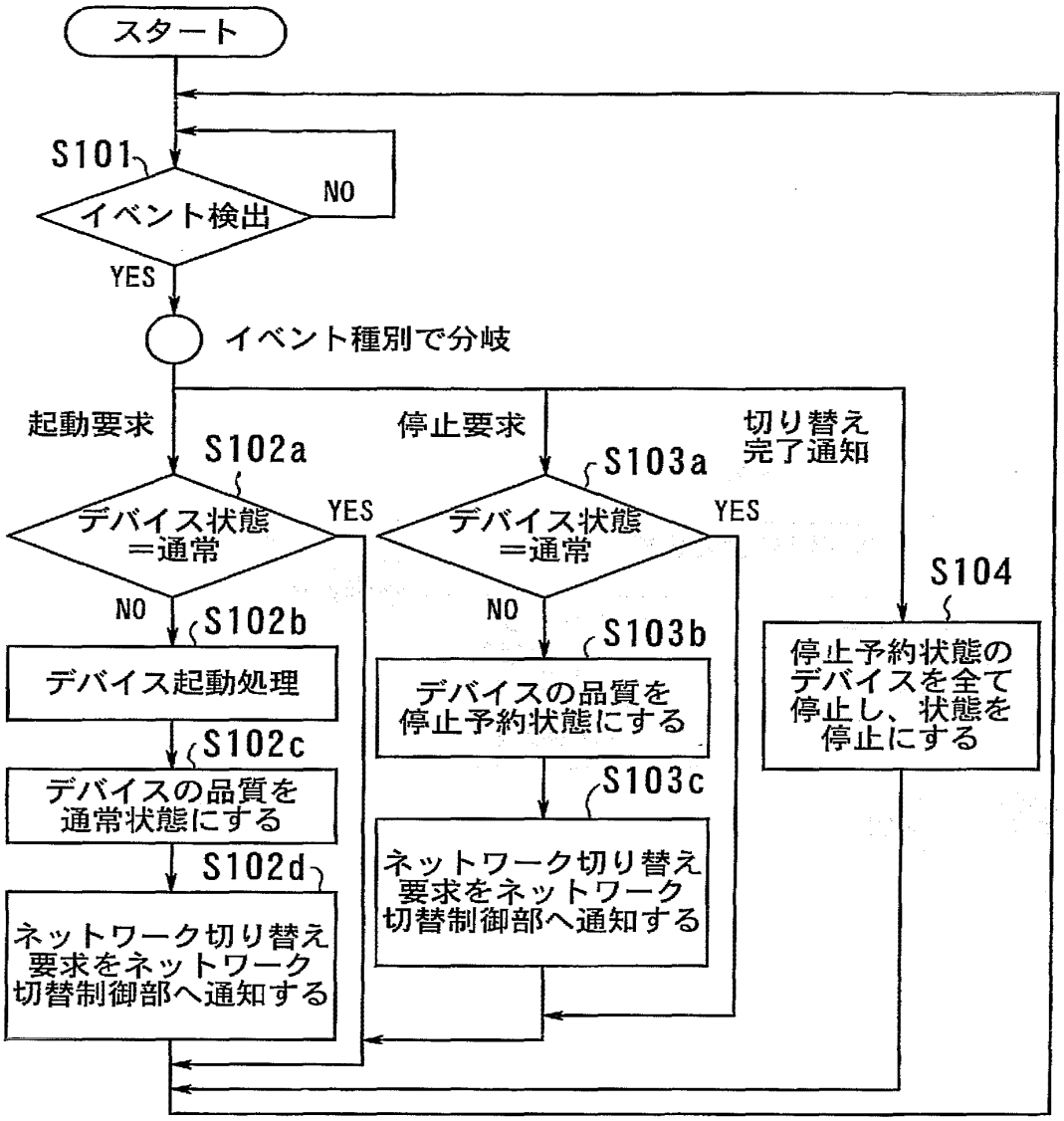

スタート
S101
イベント検出
NO
YES
イベント種別で分岐
起動要求
停止要求
切り替え
完了通知
S102a
デバイス状態
＝通常
YES
NO
S102b
デバイス起動処理
S102c
デバイスの品質を
通常状態にする
S102d
ネットワーク切り替え
要求をネットワーク
切替制御部へ通知する
S103a
デバイス状態
＝通常
YES
NO
S103b
デバイスの品質を
停止予約状態にする
S103c
ネットワーク切り替え
要求をネットワーク
切替制御部へ通知する
S104
停止予約状態の
デバイスを全て
停止し、状態を
停止にする

図１７

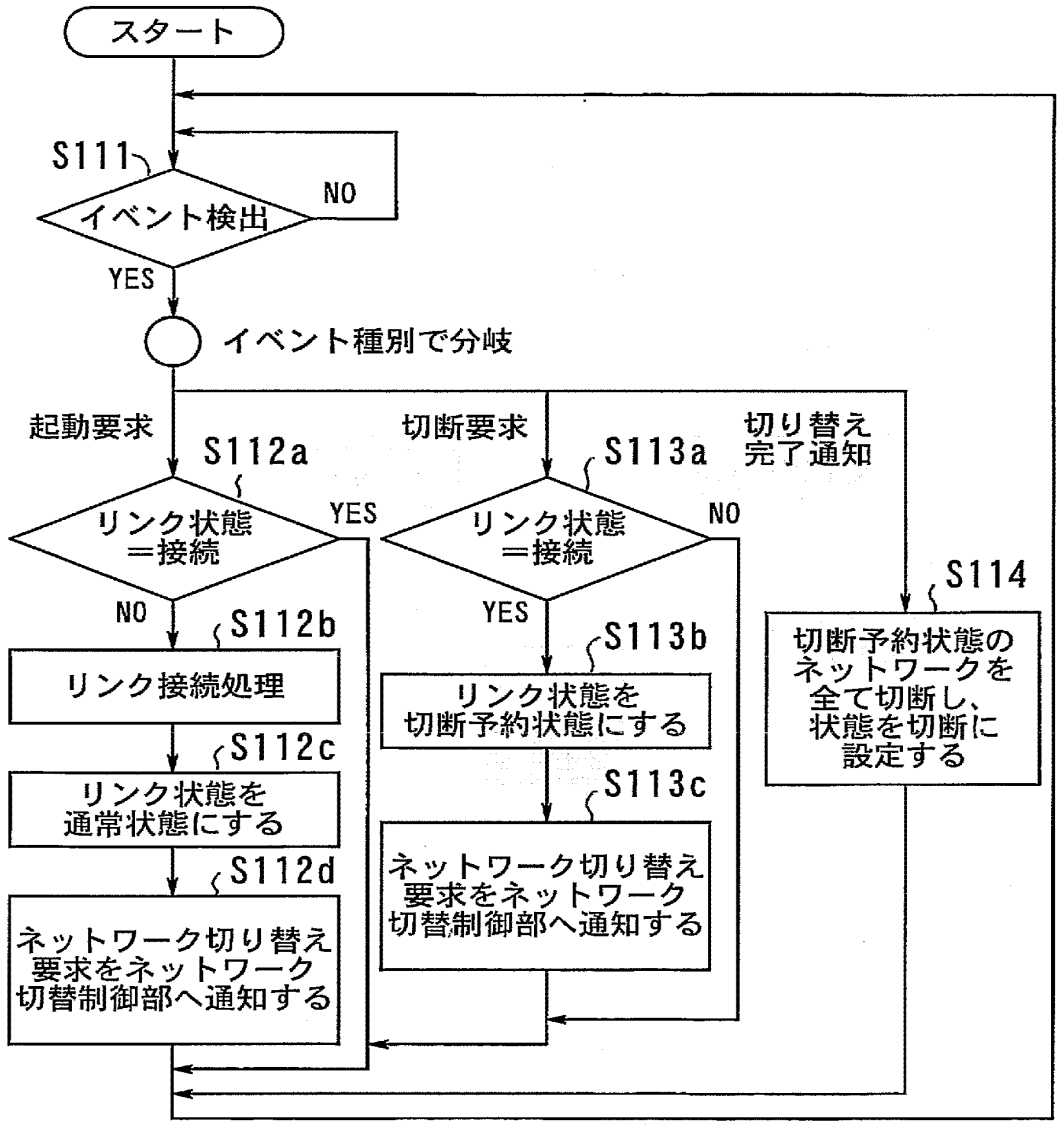

スタート
S111
イベント検出
NO
YES
イベント種別で分岐
起動要求
切断要求
切り替え
完了通知
S112a
リンク状態
＝接続
YES
NO
S112b
リンク接続処理
S112c
リンク状態を
通常状態にする
S112d
ネットワーク切り替え
要求をネットワーク
切替制御部へ通知する
S113a
リンク状態
＝接続
NO
YES
S113b
リンク状態を
切断予約状態にする
S113c
ネットワーク切り替え
要求をネットワーク
切替制御部へ通知する
S114
切断予約状態の
ネットワークを
全て切断し、
状態を切断に
設定する

図１８

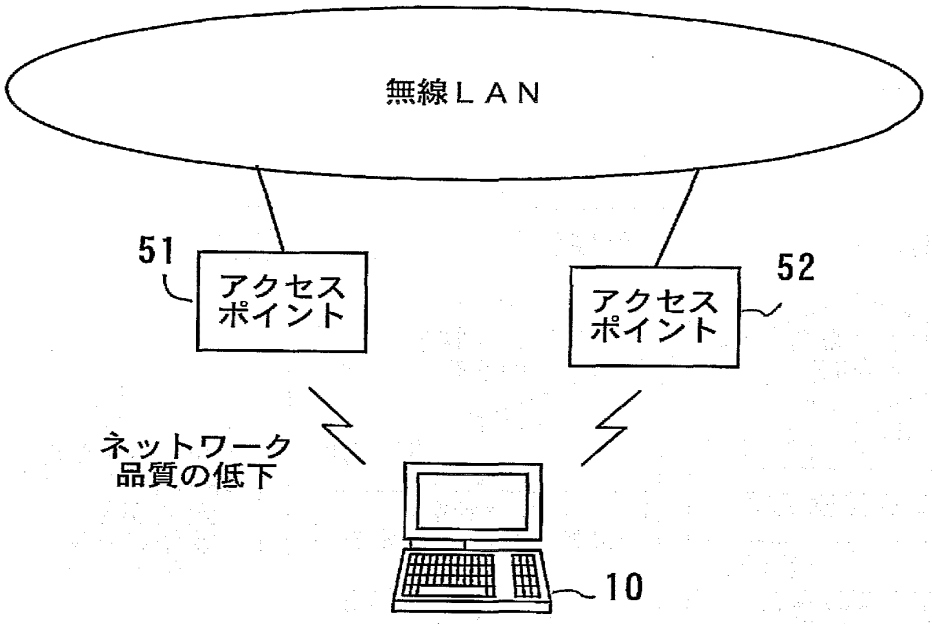


図１９

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP02/13331

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] H04Q7/38, H04L12/28, H04L12/46, H04L12/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] H04Q7/00-7/38, H04L12/28, H04L12/46, H04L12/56

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Toroku Jitsuyo Shinan Koho	1994-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2000-115236 A (Oki Electric Industry Co., Ltd.), 21 April, 2000 (21.04.00), Abstract; Claims (Family: none)	1-28
Y	JP 2002-125254 A (Mitsubishi Electric Corp.), 26 April, 2002 (26.04.02), Par. No. [0008] & EP 1199841 A2 & US 2002/0045450 A1	1-28
Y	JP 6-45990 A (Oki Electric Industry Co., Ltd.), 18 February, 1994 (18.02.94), Abstract (Family: none)	1-28

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
01 April, 2003 (01.04.03)	22 April, 2003 (22.04.03)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP02/13331

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 10-126830 A (Matsushita Electric Industrial Co., Ltd.), 15 May, 1998 (15.05.98), Abstract & EP 837617 A2 & CN 1183014 A & KR 259907 A & US 6233454 B1	1-28
A	JP 2001-258058 A (NTT Docomo Inc.), 21 September, 2001 (21.09.01), Par. Nos. [0052] to [0058] (Family: none)	1-28

国際調査報告	国際出願番号　ＰＣＴ／ＪＰ０２／１３３３１

A.　発明の属する分野の分類（国際特許分類（ＩＰＣ））
Ｉｎｔ．Ｃｌ⁷　Ｈ０４Ｑ７／３８
Ｉｎｔ．Ｃｌ⁷　Ｈ０４Ｌ１２／２８，　Ｈ０４Ｌ１２／４６，　Ｈ０４Ｌ１２／５６

B.　調査を行った分野
調査を行った最小限資料（国際特許分類（ＩＰＣ））
Ｉｎｔ．Ｃｌ⁷　Ｈ０４Ｑ７／００－７／３８
Ｉｎｔ．Ｃｌ⁷　Ｈ０４Ｌ１２／２８，　Ｈ０４Ｌ１２／４６，　Ｈ０４Ｌ１２／５６

最小限資料以外の資料で調査を行った分野に含まれるもの
日本国実用新案公報　　１９２２－１９９６年
日本国公開実用新案公報　　１９７１－２００３年
日本国登録実用新案公報　　１９９４－２００３年
日本国実用新案登録公報　　１９９６－２００３年

国際調査で使用した電子データベース（データベースの名称、調査に使用した用語）

C.　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求の範囲の番号
Ｙ	ＪＰ　２０００－１１５２３６　Ａ（沖電気工業株式会社）２０００．０４．２１，要約、特許請求の範囲（ファミリーなし）	1-28
Ｙ	ＪＰ　２００２－１２５２５４　Ａ（三菱電機株式会社）２００２．０４．２６，第８段落 ＆　ＥＰ　１１９９８４１　Ａ２ ＆　ＵＳ　２００２／００４５４５０　Ａ１	1-28

☒ Ｃ欄の続きにも文献が列挙されている。　　☐ パテントファミリーに関する別紙を参照。

＊　引用文献のカテゴリー
「Ａ」特に関連のある文献ではなく、一般的技術水準を示すもの
「Ｅ」国際出願日前の出願または特許であるが、国際出願日以後に公表されたもの
「Ｌ」優先権主張に疑義を提起する文献又は他の文献の発行日若しくは他の特別な理由を確立するために引用する文献（理由を付す）
「Ｏ」口頭による開示、使用、展示等に言及する文献
「Ｐ」国際出願日前で、かつ優先権の主張の基礎となる出願の日の後に公表された文献
「Ｔ」国際出願日又は優先日後に公表された文献であって出願と矛盾するものではなく、発明の原理又は理論の理解のために引用するもの
「Ｘ」特に関連のある文献であって、当該文献のみで発明の新規性又は進歩性がないと考えられるもの
「Ｙ」特に関連のある文献であって、当該文献と他の１以上の文献との、当業者にとって自明である組合せによって進歩性がないと考えられるもの
「＆」同一パテントファミリー文献

国際調査を完了した日	国際調査報告の発送日
０１．０４．０３	22.04.03

国際調査機関の名称及びあて先	特許庁審査官（権限のある職員）	
日本国特許庁（ＩＳＡ／ＪＰ） 郵便番号１００－８９１５ 東京都千代田区霞が関三丁目４番３号	青木　健	５Ｊ　９５７１
	電話番号　０３－３５８１－１１０１　内線　３５３４	

様式ＰＣＴ／ＩＳＡ／２１０（第２ページ）（１９９８年７月）

C（続き）．　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求の範囲の番号
Y	JP　6－45990　A（沖電気工業株式会社）1994．02．18，要約（ファミリーなし）	1-28
Y	JP　10－126830　A（松下電器産業株式会社）1998．05．15，要約 & EP　837617　A2　& CN　1183014　A & KR　259907　A　& US　6233454　B1	1-28
A	JP　2001－258058　A（株式会社エヌ・ティ・ティ・ドコモ）2001．09．21，第52－58段落（ファミリーなし）	1-28

IPR2025-00447 Page 00364

Electronic Acknowledgement Receipt

EFS ID:	11696998
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	22-DEC-2011
Filing Date:	22-SEP-2011
Time Stamp:	21:04:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	US_Form_SB_08a_12_22_2011.pdf	614580 40e56780735eceba86330cef5a8b24a65bfabf79	no	9

Warnings:	
Information:	

2	Foreign Reference	DE20310113.pdf	948986 83850ce7dc4754b9e8f2b851a81512825701f297	no	14
Warnings:					
Information:					
3	Foreign Reference	EP0936777.pdf	521487 bb52dc332678bf9ac1c80e0adad3191ae1a3995c	no	8
Warnings:					
Information:					
4	Foreign Reference	EP1471665.pdf	1403091 c5c47d1d30bc665f5bd8c9a60a3441e9314b14c1	no	16
Warnings:					
Information:					
5	Foreign Reference	GB2287858.pdf	1291974 dd3d9cadb64570f5381c841aff66480233cc2210	no	20
Warnings:					
Information:					
6	Foreign Reference	JP200226994.pdf	2923073 176fe27f91bb084fcb6ee9c2a5eee1059cc92404	no	28
Warnings:					
Information:					
7	Foreign Reference	JP2004320473.pdf	1673925 3452bca343893d9a704470dcd4559d091d3ee516	no	18
Warnings:					
Information:					
8	Foreign Reference	WO03056719.pdf	1898433 9d23898d2618d3def423d7a9c66424cffa1970b0	no	26
Warnings:					
Information:					
9	Foreign Reference	WO2004013998.pdf	2523267 495e77c232dfbb57f05aa51ff8770575481e9520	no	48
Warnings:					
Information:					
10	Foreign Reference	WO2004057903.pdf	3838484 b0db41c94afdd2f8eaaa4769ac5965a0eafb55df	no	58
Warnings:					
Information:					

11	Non Patent Literature	Other1.pdf	1785620 1c96687cc34687470986b95c48013b37e5d97ea9	no	20
Warnings:					
Information:					
12	Non Patent Literature	Other2.pdf	4350885 e2f258bbff9bcd38c47c342ead86e5637df45233	no	45
Warnings:					
Information:					
13	Non Patent Literature	Other3.pdf	2341625 770e4061a9c5decd17e8c9021c24c302c6733047	no	24
Warnings:					
Information:					
14	Non Patent Literature	Other4.pdf	15860457 404a58cf72b033329b9dcfffa34b6517f17f6b62	no	162
Warnings:					
Information:					
			Total Files Size (in bytes):	41975887	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Unassigned
	Attorney Docket Number	HAVA-00401

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20020114305	A1	2002-08-22	Oyama et al.	

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Unassigned
	Attorney Docket Number	HAVA-00401

	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Unassigned
	Attorney Docket Number	HAVA-00401

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2012-01-26
Name/Print	Jonathan O. Owens	Registration Number	37,902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	11931924
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	26-JAN-2012
Filing Date:	22-SEP-2011
Time Stamp:	17:36:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	US_IDS_Form_SB_08a_1_26_2012.pdf	613629 6214002c9cb1ff334a5fc51974fb1c0538bbf28d	no	4

Warnings:	
Information:	

Total Files Size (in bytes):	613629

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New Applications Under 35 U.S.C. 111
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National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401

CONFIRMATION NO. 7797

28960
HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

PUBLICATION NOTICE



Title:MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER

Publication No.US-2012-0033658-A1
Publication Date:02/09/2012

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

28960 7590 03/13/2012

HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

EXAMINER	
NGUYEN, HUY D	
ART UNIT	PAPER NUMBER
2627	
MAIL DATE	DELIVERY MODE
03/13/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	13/240,776	GANESAN, VASUDEVAN	
	Examiner	Art Unit	
	HUY D. NGUYEN	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-18 and 38* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-18 and 38* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-15, 18, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,909,705) in view of Adatrao et al. (US 2004/0229618).

Regarding claims 1, 8-10, Lee teaches a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks (e.g., cellular and Bluetooth networks - see fig. 1 & 2 and col. 4, lines 34-55), the method comprising: establishing a first communication link between the mobile communication device and an end destination device (it is inherent to communicate with an end destination device), wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network; notifying the mobile communication device to terminate transmission over the first communication link (e.g., Bluetooth network - see fig. 1 & 2 and col. 4, lines 34-55); and re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network (see the abstract and fig. 1 & 2 and col. 4, lines 34-55 and col. 5, lines 7-26).

Lee does not teach monitoring a signal strength of the first wireless communication link; when the signal strength drops below a predetermined threshold, notifying an interface server and establishing a second communication link between the interface server and the end destination device. The preceding limitation is taught in Adatrao (see par. 19 & 35). It would have been obvious to have implemented the system of Lee with the teaching of Adatrao in order to perform handoff more effectively.

Regarding claim 2, Lee teaches wherein the first type of wireless communication link comprises a WiFi communication link (e.g., Bluetooth network), and the first type of wireless network includes a WiFi network access point (see fig. 1 & 2 and col. 4, lines 34-55).

Regarding claims 3, 5, Lee teaches wherein the second type of wireless network includes a wireless cellular network (see fig. 1 & 2 and col. 4, lines 34-55).

Regarding claims 4, 6, Lee teaches wherein establishing the first communication link includes routing through a VOIP network (see col. 5, lines 7-26).

Claim 7 is rejected with the same reason set forth in claim 3.

Regarding claim 11, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the router association removed from the mobile switching center when the connectivity status is not provided to the interface server to save resource.

Claims 12-13 are rejected with the same reason set forth in claim 1.

Claims 14-15, 18 are rejected with the same reason set forth in claim 2.

Claim 38 is rejected with the same reason set forth in claim 4.

3. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Adatrao and Utas (US 6,515,983).

Regarding claims 16-17, Lee in view of Adatrao does not teach providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server. The preceding limitation is taught in Utas (see col. 4, lines 52-55). It would have been obvious to have implemented the system of Lee et al. in view of Adatrao with the teaching of Utas so that the MSC would communicate more effectively with the interface server.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUY D. NGUYEN whose telephone number is (571)272-7845. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUY D. NGUYEN/
Examiner, Art Unit 2627

/Thang V. Tran/
Primary Examiner, Art Unit 2627

Notice of References Cited	Application/Control No. 13/240,776	Applicant(s)/Patent Under Reexamination GANESAN, VASUDEVAN	
	Examiner HUY D. NGUYEN	Art Unit 2627	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2001/0049790 A1	12-2001	Faccin et al.	713/185
*	B	US-2003/0087629 A1	05-2003	Juitt et al.	455/411
*	C	US-2006/0146767 A1	07-2006	Moganti, Madhav	370/338
*	D	US-7,142,847 B2	11-2006	Umeda et al.	455/418
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	HUY D NGUYEN	2627

SEARCHED			
Class	Subclass	Date	Examiner
Text search.	See search history.	2/29/2012	HN

SEARCH NOTES		
Search Notes	Date	Examiner
East. Text search.	2/29/2012	HN

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Not yet assigned
	Attorney Docket Number	HAVA-00401

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6515983	B1	2003-02-04	Utas	
	2	6553022	B2	2003-04-22	Hartmaier	
	3	6584087	B1	2003-06-24	Czaja et al.	
	4	6754833	B1	2004-06-22	Black et al.	
	5	6862444	B2	2005-03-01	Karaoguz et al.	
	6	6996107	B2	2006-02-07	Janoska	
	7	7127232	B2	2006-10-24	O'Neil et al.	
	8	7142847	B2	2006-11-28	Umeda et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /HN/

Receipt date: 12/22/2011	Application Number	13240776	13240776 - GAU: 2627
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	First Named Inventor	Vasudevan Ganesan	
	Art Unit	2617	
	Examiner Name	Not yet assigned	
	Attorney Docket Number	HAVA-00401	

	9	7382763	B2	2008-06-03	Ludwig et al.	
	10	7512796	B2	2009-03-31	Haverinen et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010049790	A1	2001-12-06	Faccin et al.	
	2	20020078174	A1	2002-06-20	Sim et al.	
	3	20020085516	A1	2002-07-04	Bridgelall	
	4	20020147008	A1	2002-10-10	Kallio	
	5	20020150228	A1	2002-10-17	Umeda et al.	
	6	20030083079	A1	2003-05-01	Clark et al.	
	7	20030087629	A1	2003-05-08	Juitt et al.	

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	Examiner Name	Not yet assigned	
	Attorney Docket Number	HAVA-00401	

	8	20030086366	A1	2003-05-08	Branlund et al.	
	9	20030112766	A1	2003-06-19	Riedel et al.	
	10	20030217007	A1	2003-11-20	Fukushima et al.	
	11	20030217091	A1	2003-11-20	Echigo et al.	
	12	20030224792	A1	2003-12-04	Verma et al.	
	13	20040005878	A1	2004-01-08	Olin et al.	
	14	20040030791	A1	2004-02-12	Dorenbosch et al.	
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	16	20040087307	A1	2004-05-06	Ibe et al.	
	17	20040105424	A1	2004-06-03	Skoczkowski et al.	
	18	20040127208	A1	2004-07-01	Nair et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /HN/

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	Art Unit	2617	
	Examiner Name	Not yet assigned	
	Attorney Docket Number	HAVA-00401	

	19	20040132427	A1	2004-07-08	Lee et al.	
	20	20040137902	A1	2004-07-15	Chaskar et al.	
	21	20040174880	A1	2004-09-09	White et al.	
	22	20040203666	A1	2004-10-14	Foster et al.	
	23	20040203788	A1	2004-10-14	Fors et al.	
	24	20040218575	A1	2004-11-04	Ibe et al.	
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	29	20060040711	A1	2006-02-23	Whistler	

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	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Not yet assigned
	Attorney Docket Number	HAVA-00401

	30	20060050663	A1	2006-03-09	Ganesan	
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	39	20070249390	A1	2007-10-25	Purkayastha et al.	
	40	20090070489	A1	2009-03-12	Lu et al.	

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(Not for submission under 37 CFR 1.99)	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Not yet assigned
	Attorney Docket Number	HAVA-00401

	41	20110010282	A1	2011-01-13	Olin et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	200310113	DE	UI	2004-01-15	InterDigital Technology Corporation		☐
	2	0936777	EP	A1	1999-08-18	Lucent Technologies Inc.		☐
	3	1471665	EP	A1	2004-10-27	Legend(Beijing) Limited		☐
	4	2287858	GB	A	1995-09-27	Motorola Limited		☐
	5	200226994	JP	A	2002-01-25	Nec Corporation		☐
	6	2004320473	JP	A	2004-11-11	ISHIKURA KATSUTOSHI		☐
	7	03056719	WO	A1	2003-07-10	Legend(Beijing) Limited		☐
	8	2004013998	WO	A2	2004-02-12	Motorola, Inc.		☐

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	Art Unit	2617
	Examiner Name	Not yet assigned
	Attorney Docket Number	HAVA-00401

	9	2004057903	WO	A1	2004-07-08	Fujitsu Limited		☐

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	3GPP Organization Project, "3rd Generation Partnership Project;Technical Specification Group Services and System Aspects Service aspects; Handover requirements between UTRAN and GERAN or other radio systems (Release 8)", 2006-03, pages 1-20	☐
	2	3GPP Organization Project, "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects Service aspects; Service principles (Release 8)", 2006-03, pages 1-45	☐
	3	3GPP Organization Project, "3rd Generation Partnership Projects;Technical Specification Group Service and System Aspects; Service Requirements for the All-IP Network (AIPN); V8.0.0, Stage 1, (Release 8), page 1-24	☐
	4	" Unlicensed Mobile Access (UMA);Protocols (Stage 3)", R1.0.4, 2005-05-02, pages 1-162	☐

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EXAMINER SIGNATURE

Examiner Signature	/Huy Nguyen/	Date Considered	02/29/2012

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Receipt date: 12/22/2011	Application Number	13240776	13240776 - GAU: 2627
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	First Named Inventor	Vasudevan Ganesan	
	Art Unit	2617	
	Examiner Name	Not yet assigned	
	Attorney Docket Number	HAVA-00401	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2011-12-22
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	0	1 and 2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 16:50
L2	29810262	@ad<"20050114"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 16:50
L1	3	connectivity adj3 status near5 rout$3 near3 remove$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 16:50
S86	2	"6584087".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 15:08
S85	2	"8078164".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 14:20
S84	12	S80 and S81	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 12:08
S83	0	S81 and S82	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 12:08
S82	2	((cell or cellular or mobile or portable or hand or handheld or wireless or tablet) adj2 (phone or telephone or device or station or unit or handset or terminal or equipment or computer) or pda or palm adj os or mobile adj pocket adj pc or laptop) near3 (notify$2 send$2 adj2 notification notice$2) near5 (server bts base adj station msc) same (frequency link channel) with (less below smaller) near3 (threshold number)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 12:07
S81	21	seamless near2 roam$3 same (different or other or another) adj3 ((system or network) near2 (type or	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/02/29 12:07

		kind))	DERWENT; IBM_TDB			
S80	29810262	@ad<"20050114"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/02/29 12:06
S79	2	"20070116917"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/06/15 09:16
S78	3	"20040229618"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/06/13 20:51
S77	0	(((cell or cellular or mobile or portable or hand or handheld or wireless or tablet) adj2 (phone or telephone or device or station or unit or handset or terminal or equipment or computer) or pda or palm adj os or mobile adj pocket adj pc or laptop) near3 (notify$2 send$2 adj2 notification notice$2) near8 (server bts base adj station msc) same (frequency link channel) with (less below smaller) near3 (threshold number)).clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/06/13 19:41
S76	0	(((cell or cellular or mobile or portable or hand or handheld or wireless or tablet) adj2 (phone or telephone or device or station or unit or handset or terminal or equipment or computer) or pda or palm adj os or mobile adj pocket adj pc or laptop) near3 (notify$2 send$2 adj2 notification notice$2) near5 (server bts base adj station msc) same (frequency link channel) with (less below smaller) near3 (threshold number)).clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/06/13 18:17
S75	2	((cell or cellular or mobile or portable or hand or handheld or wireless or tablet) adj2 (phone or telephone or device or station or unit or handset or terminal or equipment or computer) or pda or palm adj os or mobile adj pocket adj pc or laptop) near3 (notify$2 send$2 adj2 notification notice$2) near5 (server bts base adj station msc) same (frequency link channel) with (less below smaller) near3 (threshold number)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/06/13 18:11
S74	1	((cell or cellular or mobile or portable or hand or handheld or wireless or tablet) adj2 (phone or telephone or device or station or unit or handset or terminal or equipment or computer) or pda or palm adj os or mobile adj pocket adj pc or laptop) near3 (notify$2 send$2 adj2 notification notice$2) near5 (server bts base adj	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/06/13 18:10

		station msc) with (frequency link channel) with (less below smaller) near3 (threshold number)				
S73	2	S71 and S72	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:57
S72	605	reverse adj2 link with threshold	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:57
S71	12	S69 and S70	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:55
S70	27	S67 and S68	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:54
S69	27847138	@ad<"20040106"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:54
S68	159852	"455"/$.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:49
S67	121	(camp$3 first) adj2 (link connection) with (below less) adj2 threshold	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:49
S66	62	(camp$3 first) adj2 link with (below less) adj3 threshold	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/09 13:49
S65	3	S63 and S64	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/08 16:58
S64	29787514	@ad<"20050114"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/08 16:58
S63	4	S61 and S62	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/08 16:58
S62	159852	"455"/$.ccls.	US-PGPUB; USPAT;	OR	ON	2011/02/08 16:58

			EPO; JPO; DERWENT; IBM_TDB			
S61	13	first adj link with (below less) adj2 threshold	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/02/08 16:57
S60	2	"6909705".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/07/30 12:21
S59	7	S55 and S58	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 16:25
S58	43	S56 and S57	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 16:25
S57	30321	roam$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 16:25
S56	90	soft adj2 (handoff or handover or hand adj off or hand adj over) and cellular same (voice adj over adj internet or voip)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 16:25
S55	27834817	@ad<"20040106"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 16:24
S54	25	S52 and S53	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 15:07
S53	30321	roam$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 15:07
S52	36	S51	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 15:06
S51	36	S49 and S50	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 15:06
S50	90	soft adj2 (handoff or handover or hand adj off or hand adj over) and	US-PGPUB; USPAT;	OR	ON	2010/05/25 15:06

		cellular same (voice adj over adj internet or voip)	EPO; JPO; DERWENT; IBM_TDB			
S49	30134186	@ad<"20050114" or @rlad<"20050114"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 15:06
S48	30321	roam$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 15:05
S47	36	S44 and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 13:28
S46	90	soft adj2 (handoff or handover or hand adj off or hand adj over) and cellular same (voice adj over adj internet or voip)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 13:28
S45	0	S43 and S44	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 13:28
S44	30134186	@ad<"20050114" or @rlad<"20050114"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 13:28
S43	6	soft adj2 (handoff or handover or hand adj off or hand adj over) same cellular same (voice adj over adj internet or voip)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 13:28
S42	2	"5574775".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/05/25 13:23
S41	6	S25 and S40	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:34
S40	7	soft adj2 (handoff or handover or hand adj off or hand adj over) same cell$5 same cordless	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:34
S39	0	S25 and S38	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:33
S38	2	soft adj2 (handoff or handover or hand adj off or hand adj over) same	US-PGPUB; USPAT;	OR	ON	2009/12/08 14:33

		cell$5 same wifi	EPO; JPO; DERWENT; IBM_TDB			
S37	31	S25 and S36	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:32
S36	90	soft adj2 (handoff or handover or hand adj off or hand adj over) and cell$5 same wifi	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:32
S35	2	S25 and S34	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:28
S34	2	soft adj2 (handoff or handover or hand adj off or hand adj over) and cellular same blue adj tooth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:28
S33	10	S25 and S32	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:25
S32	14	soft adj2 (handoff or handover or hand adj off or hand adj over) same different adj2 type adj3 (system or network)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:25
S31	28	S25 and S30	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:24
S30	84	soft adj2 (handoff or handover or hand adj off or hand adj over) and cellular same wifi	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:23
S29	0	S25 and S28	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:23
S28	2	soft adj2 (handoff or handover or hand adj off or hand adj over) same cellular same wifi	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:23
S27	0	S25 and S26	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:23
S26	1	soft adj2 (handoff or handover or hand adj off or hand adj over) same	US-PGPUB; USPAT;	OR	ON	2009/12/08 14:23

		cellular with wifi	EPO; JPO; DERWENT; IBM_TDB			
S25	30078200	@ad<"20050114" or @rlad<"20050114"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 14:21
S24	6	S15 and S23	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 22:18
S23	7	protocol near3 (establish$2 or generat$2) near3 msc	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 22:18
S22	0	bsc with protocol near3 (establish$2 or generat$2) near3 msc	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 22:15
S21	18	plmn near2 connect$3 near2 msc	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 21:53
S20	12	S15 and S19	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 21:30
S19	16	seamless near2 roam$3 and (different or other or another) adj3 ((system or network) near2 (type or kind)) and voip	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 21:29
S18	0	S16 and S17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 21:29
S17	27106	voip	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 21:29
S16	11	S14 and S15	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 21:25
S15	28151689	@ad<"20040106" or @rlad<"20040106" or @ptad<"20040106"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 21:25
S14	17	seamless near2 roam$3 and (different or other or another) adj3 ((system or	US-PGPUB; USPAT;	OR	ON	2008/12/20 21:25

		network) near2 (type or kind)) and wifi	EPO; JPO; DERWENT; IBM_TDB			
S13	4	S9 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 17:24
S12	9	soft adj2 (handoff or handover or hand adj2 (off or over)) same (different or other or another) adj3 ((system or network) near2 (type or kind))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 17:24
S11	14	S9 and S10	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 17:17
S10	15	seamless near2 roam$3 same (different or other or another) adj3 ((system or network) near2 (type or kind))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 17:17
S9	29949254	@ad<"20050114" or @rlad<"20050114" or @ptad<"20050114"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 17:16
S8	1	S4 and S7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 16:34
S7	55	S2 and S6	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 16:34
S6	68	seamless near2 roam$3 and (different or other or another) adj3 ((system or network) near2 (type or kind))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 16:34
S5	0	S3 and S4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 16:34
S4	7633	soft adj2 (handoff or handover or hand adj2 (off or over))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 16:34
S3	12	S1 and S2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 16:24
S2	28151689	@ad<"20040106" or @rlad<"20040106" or	US-PGPUB; USPAT;	OR	ON	2008/12/20 16:24

		@ptad< "20040106"	EPO; JPO; DERWENT; IBM_TDB			
S1	15	seamless near2 roam$3 same (different or other or another) adj3 ((system or network) near2 (type or kind))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/20 16:19

EAST Search History (Interference)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Unassigned
	Attorney Docket Number	HAVA-00401

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /HN/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Unassigned
	Attorney Docket Number	HAVA-00401

	1		☐

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EXAMINER SIGNATURE

Examiner Signature	/Huy Nguyen/	Date Considered	02/29/2012

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /HN/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2617
	Examiner Name	Unassigned
	Attorney Docket Number	HAVA-00401

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2012-01-26
Name/Print	Jonathan O. Owens	Registration Number	37,902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	HUY D NGUYEN	2627

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012								
	1	✓								
	2	✓								
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	4	✓								
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	Examiner	Art Unit
	HUY D NGUYEN	2627

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012								
	37	-								
	38	✓								

PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2627
Vasudevan Ganesan	Examiner: Nguyen, Huy D.
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED March 13, 2012**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
	Customer No. 28960

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:
   a. establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network;
   b. monitoring a signal strength of the first wireless communication link;
   c. when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device;
   d. notifying the mobile communication device to terminate transmission over the first communication link; and
   e. re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network.

2. (original) The method of claim 1 wherein the first type of wireless communication link comprises a WiFi communication link, and the first type of wireless network includes a WiFi network access point.

3. (original) The method of claim 2 wherein the second type of wireless network includes a wireless cellular network.

4. (original) The method of claim 1 wherein establishing the first communication link includes routing through a VOIP network.

5. (original) The method of claim 1 wherein establishing the first communication link includes routing through a cellular network.

6. (original) The method of claim 1 wherein establishing the second communication link includes routing through a VOIP network.

7. (original) The method of claim 1 wherein establishing the second communication link includes routing through a cellular network.

8. (original) The method of claim 1 further comprising providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network.

9. (original) The method of claim 8 further comprising providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server.

10. (original) The method of claim 9 further comprising routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the first type of wireless network.

11. (original) The method of claim 10 further comprising when the connectivity status is not provided to the interface server, the router association is removed from the mobile switching center.

12. (original) The method of claim 1 further comprising registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold.

13. (original) The method of claim 12 further comprising setting up the second communication link with the end destination device and forwarding the second communication link to the interface server.

14. (previously presented) A method of providing communications for a mobile communication device that roams between multiple WiFi coverage areas, the method comprising:

a. associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more WiFi access points;
b. establishing a first WiFi communication link between the mobile communication device and a first WiFi access point;
c. registering the mobile communication device with the nomadic server including providing an IP address of the first WiFi access point to the nomadic server;
d. configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first WiFi access point and the first WiFi communication link;
e. detecting movement of the mobile communication device into a coverage area of a second WiFi access point;
f. registering the mobile communication device with the nomadic server including an IP address of the second WiFi access point;
g. establishing a second WiFi communication link between the mobile communication device and the second WiFi access point; and
h. re-configuring the communication path according to the IP address of the second WiFi access point and the second WiFi communication link;

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

15. (original) The method of claim 14 further comprising associating the mobile communication device to the nomadic server at the mobile switching center.

16. (original) The method of claim 14 further comprising providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

17. (original) The method of claim 16 further comprising routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association, and routing the termination communication from the interface server to the mobile communication device over the communication path.

18. (original) The method of claim 14 wherein registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific WiFi access point.

Claims 19-37 (canceled).

38. (previously presented) A method of providing communications between mobile communication devices, the method comprising:

a. routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device;
b. routing the communication over a second communication link between the first cellular base station and a first controller device;
c. routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network;
d. routing the communication over a fourth communication link between the second controller device and a second cellular base station; and
e. routing the communication over a fifth communication link between the second cellular base station and the second communication device;

wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold.

REMARKS

The Applicant respectfully requests further examination and consideration of the claims in view of the above amendments and the arguments set forth fully below. Claims 1-18 and 38 were pending in this application. Within the Office Action, Claims 1-18 and 38 have been rejected. By the above amendments, Claim 1 has been amended. Accordingly, Claims 1-18 and 38 are now pending.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 1-15, 18 and 38 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. US 6,909,705 to Lee et al. (hereinafter "Lee") in view of U.S. Patent App. No. 2004/00229618 to Adatrao et al. (hereinafter "Adatrao"). The Applicant respectfully disagrees.

Lee teaches that in one embodiment, handoffs can be performed within the Bluetooth network 116 using location data, signal quality, or signal strength. [Lee, col. 4, lines 39-41] Lee teaches that a discovery process is conducted at regular intervals by the Bluetooth Enabled Devices (BTEDs) 120 to identify the closest Bluetooth Hub (BT Hub) 118. [Lee, col. 4, lines 41-43] Then, a BTED 120 communicates its position to the BT Hub 118, which in turn takes over responsibility for transmitting data to and from the BTEDs 120. [Lee, col. 4, lines 43-47] Lee further teaches that in one embodiment, a cellular network 100 performs handoffs by treating the BT Hub 118A as a pseudo BTS 106. [Lee, col. 2, lines 47-49] Lee teaches that in these situations, a handoff message is relayed from the BT Hub 118A to the BSC 104 through the BTS 106, and a handoff is performed in a manner similar to a *normal handoff* in the cellular network 100. [Lee, col. 4, lines 49-53] Lee teaches that once it is out of the Bluetooth network 116, the BTED 120A will attempt to register with the cellular network 100 instead. [Lee, col. 2, lines 53-55] However, as recognized within the Office Action, Lee does not teach when the signal strength drops below a predetermined threshold, notifying an interface server and establishing a second communication link between the interface server and the end destination device. Thus, Lee clearly cannot teach when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device. Accordingly, Lee does not teach the presently claimed invention.

Adatrao is directed to a method and apparatus for performing soft-handoff in a wireless communication system. Specifically, Adatrao teaches that in order to avoid dropping a communication link that has a weak forward link but a strong reverse link, a communication system is provided that determines whether the reverse link is still good before determining to drop the communication link. [Adatrao, Abstract] Adatrao is only cited for the purpose of teaching when the signal strength drops below a predetermined threshold, notifying an interface server and establishing a second communication link between the interface server and the end destination device. However, the claimed limitation now recites "when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device." Adatrao does not teach the above limitation. Instead, Adatrao teaches that the mobile station 202 merely sends a plurality of frames to a processor, wherein the processor (not the mobile communication device) "compares the [signal] quality metric to a threshold to produce a comparison." [Adatrao, ¶ 0019] Nowhere in Adatrao is it taught that the mobile station 202 notifies the controller/processor 210 if the link falls below a threshold. Rather, because the threshold information is stored in one or more memory devices coupled to the processor (and not on the mobile device), it cannot be determined whether the link falls below the threshold at the mobile device itself. As a result, it is clear that the mobile station of Adatrao cannot notify the processor if the first communication link falls below a threshold. Accordingly, Adatrao does not teach when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device.

Therefore, neither Lee, Adatrao nor their combination teach when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device. Accordingly, the combination of Lee and Adatrao does not teach the presently claimed invention.

In contrast to the teachings of Lee and Adatrao, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WiFi and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WiFi and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible.

Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WiFi hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, neither Lee, Adatrao nor their combination teaches when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device.

The independent Claim 1 is directed to a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks. The method comprises establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network, monitoring a signal strength of the first wireless communication link, when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device, notifying the mobile communication device to terminate transmission over the first communication link and re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network. As described above, neither Lee, Adatrao nor their combination teach when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device. For at least these reasons, the independent Claim 1 is allowable over the teachings of Lee, Adatrao and their combination.

Claims 2-13 are dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over Lee, Adatrao and their combination. Accordingly, Claims 2-13 are all also allowable as being dependent on an allowable base claim.

The independent Claim 14 is directed to a method of providing communications for a mobile communication device that roams between multiple WiFi coverage areas. The method comprises associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more WiFi access points, establishing a first WiFi communication link between the mobile communication device and a first WiFi access point, registering the mobile communication device with the nomadic server including providing an IP

address of the first WiFi access point to the nomadic server, configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first WiFi access point and the first WiFi communication link, detecting movement of the mobile communication device into a coverage area of a second WiFi access point, registering the mobile communication device with the nomadic server including an IP address of the second WiFi access point, establishing a second WiFi communication link between the mobile communication device and the second WiFi access point and re-configuring the communication path according to the IP address of the second WiFi access point and the second WiFi communication link; wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. As described above, neither Lee, Adatrao nor their combination teach when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device. For at least these reasons, the independent Claim 14 is allowable over Lee, Adatrao and their combination.

Claims 15 and 18 are dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Lee, Adatrao and their combination. Accordingly, Claims 15 and 18 are both also allowable as being dependent on an allowable base claim.

The independent Claim 38 is directed to a method of providing communications between mobile communication devices. The method comprises routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device, routing the communication over a second communication link between the first cellular base station and a first controller device, routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network, routing the communication over a fourth communication link between the second controller device and a second cellular base station and routing the communication over a fifth communication link between the second cellular base station and the second communication device, wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold. As described above, neither Lee, Adatrao nor their combination teach when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the

interface server and the end destination device. For at least these reasons, the independent Claim 38 is allowable over Lee, Adatrao and their combination.

Within the Office Action, Claims 16 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Adatrao and in further view of U.S. Patent No. 6,515,983 to Utas (hereinafter "Utas"). The Applicants respectfully disagree.

Claims 16 and 17 are dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Lee, Adatrao and their combination. Accordingly, Claims 16 and 17 are both also allowable as being dependent on an allowable base claim.

CONCLUSION

Applicant respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: June 8, 2012

By: /Jonathan O. Owens/
Jonathan O. Owens
Reg. No.: 37,902
Attorneys for Applicants

Electronic Acknowledgement Receipt

EFS ID:	12973434
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	08-JUN-2012
Filing Date:	22-SEP-2011
Time Stamp:	17:22:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response_6_8_2012.pdf	56656 16fe8a8b363379c12dca744b1698de88d727b69f	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	5
	Applicant Arguments/Remarks Made in an Amendment	6	10
Warnings:			
Information:			
	Total Files Size (in bytes):	56656	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/240,776	09/22/2011	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT	06/08/2012	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0	X $30 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/ROSALIND BALL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

28960 7590 11/05/2012

HAVERSTOCK & OWENS LLP
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EXAMINER	
KASRAIAN, ALLAHYAR	
ART UNIT	PAPER NUMBER
2642	
MAIL DATE	DELIVERY MODE
11/05/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	13/240,776	GANESAN, VASUDEVAN	
	Examiner	Art Unit	
	ALLAHYAR KASRAIAN	2642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2012*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-18 and 38* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-10,12-18 and 38* is/are rejected.

8)☒ Claim(s) *11* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *22 September 2011* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner and Art Unit- Location

1. The Examiner and Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Examiner Allahyar Kasraian and Art Unit 2642.

Remarks

2. The present Office Action is based upon the Applicant's amendment filed on June 08, 2012. **Claims 1-18 and 38** are now pending in the present application.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature of **claims 14-18 and 38** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. **Claims 2, 4, 6, 11, 14 and 38** are objected to because of the following informalities:

a) On **line 2** of **claim 2**, the acronym word, "WiFi" should be presented for what it stands for;

b) On **line 2** of **claim 4**, the acronym word, "VOIP" should be presented for what it stands for;

c) On **line 2** of **claim 6**, the acronym word, "VOIP" should be presented for what it stands for;

d) On **line 2** of **claim 11**, replace “router” with --routing-- before “association”;

e) On **line 2** of **claim 14**, the acronym word, "WiFi" should be presented for what it stands for;

f) On **line 11** of **claim 38**, replace “a” with --an-- before “Internet”;

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claim 15 and 17** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. **Claim 15** recites the limitation "the mobile switching center" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. (Note: independent claim 14 is related roaming a mobile communication device between multiple WiFi coverage area. There is nothing regarding a cellular network with a mobile switching center in claim 14).

B. **Claim 17** is vague and indefinite because it recites, “routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association, and routing the termination communication from the interface server to the mobile communication device over the communication path.” However, it is unclear why the termination communication from the mobile switching center to the interface server happens since the independent claim 14 is related roaming a mobile communication device between multiple WiFi coverage area, and there is nothing regarding a cellular network and connection to a mobile switching center indicated in claim 14 (or claims 16 and 17).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless – (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. **Claims 1-10, 12 and 13** are rejected under 35 U.S.C. 102(e) as being anticipated by **Ibe et al. (US Patent # 8041360 B2)** (hereinafter Ibe).

Consider **claim 1**, Ibe discloses a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:

a. establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network (FIG. 2, col. 3, lines 32-36, for a dual mode mobile device originates a call (the claimed first communication link includes a first wireless communication link) within a WLAN (the claimed first type of wireless network) to other party);

b. monitoring a signal strength of the first wireless communication link (col. 3, lines 32-47, for monitoring signal quality by measuring SNR);

c. when the signal strength drops below a predetermined threshold (col. 3, lines 32-47, for when the SNR reaches some threshold value d), notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device (col. 3, lines 48-51 for sending a HandoffRequest message to cellular proxy

(claimed interface server), and FIG. 2, col. 3, line 55 to col. 4, line 12 for forwarding the call to mobile device over a new connection established via the cellular network);

d. notifying the mobile communication device to terminate transmission over the first communication link (FIG. 2, col. 3 line 55 to col. 4 line 12 for commands the mobile station to switch its radio to the cellular network); and

e. re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network (FIG. 2, col. 3 line 55 to col. 4 line 12, for forwarding the call to mobile device over a new connection established via the cellular network; Note: the second communication link is considered as the link where the call is connected through a radio link (the claimed second wireless communication link) through the cellular network).

Consider **claim 2 as applied to claim 1 above**, and Ibe further discloses wherein the first type of wireless communication link comprises a WiFi communication link, and the first type of wireless network includes a WiFi network access point (FIG. 1 col. 3, lines 7-31, for WLAN connection and access point; note that Wi-Fi is defined as any WLAN products that are based on IEEE 802.11 standard).

Consider **claim 3 as applied to claim 2 above**, and Ibe further discloses wherein the second type of wireless network includes a wireless cellular network (FIG.

1, col. 3, line 55 to col. 4, line 12, for forwarding the call to mobile device over a new connection established via the cellular network).

Consider **claim 4 as applied to claim 1 above**, and Ibe further discloses wherein establishing the first communication link includes routing through a VOIP network (FIG. 1, col. 2, lines 16-29 for the cellular proxy also provides the VoIP interface between the enterprise LAN and the PBX).

Consider **claim 5 as applied to claim 1 above**, and Ibe further discloses wherein establishing the first communication link includes routing through a cellular network (FIG. 3, col. 4 lines 13-26 for the situation when the other party is located in the cellular carrier network).

Consider **claim 6 as applied to claim 1 above**, and Ibe further discloses wherein establishing the second communication link includes routing through a VOIP network (FIGS. 1 and 2, with consideration of the teachings of: col. 2, lines 16-29 for the cellular proxy also provides the VoIP interface between the enterprise LAN and the PBX; and col. 3 line 55 to col. 4 line 12 for the situation when the other party is located in the PSTN).

Consider **claim 7 as applied to claim 1 above**, and Ibe further discloses wherein establishing the second communication link includes routing through a cellular network (FIG. 1, col. 3, line 55 to col. 4, line 12, for forwarding the call to mobile device over a new connection established via the cellular network).

Consider **claim 8 as applied to claim 1 above**, and Ibe further discloses the method further comprising providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network (col. 3, lines 48-51 for when a mobile device experiences SNR measurement value of r, it sends a Handoff Request message to the Cellular Proxy via the TCP connection that exists between the two devices).

Consider **claim 9 as applied to claim 8 above**, and Ibe further discloses providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server (col. 3, line 55 to col. 4, line 12, for receiving parameters of the call (claimed routing association) from the cellular network (with an inherent MSC) the Cellular Proxy will forward the parameters to the mobile device; or FIG. 5, col. 4 line 28 to col. 5 line 11 for sending SMS message 512 (claimed routing association) to the cellular base station (connected to its inherent MSC) and it is routed the cellular Proxy by SMS message 514).

Consider **claim 10 as applied to claim 9 above**, and Ibe further discloses routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the

first type of wireless network (col. 3, line 55 to col. 4, line 12, for the Cellular Proxy closing the TCP connection).

Consider **claim 12 as applied to claim 1 above**, and Ibe further discloses registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold (col. 3, line 55 to col. 4, line 12 for forwarding the call to mobile device over a new connection (claimed registering) established via the cellular network with an inherent MSC).

Consider **claim 13 as applied to claim 12 above**, and Ibe further discloses setting up the second communication link with the end destination device and forwarding the second communication link to the interface server (FIG. 1, col. 3, line 55 to col. 4, line 12, for forwarding the call to mobile device over a new connection established via the cellular network through Cellular Proxy).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

A. **Claims 14 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rue (US Patent Application Publication # 20030185172 A1)** in view of **Wang (US Patent Application Publication # 20040114559 A1)**.

Consider **claim 14**, Rue discloses a method of providing communications for a mobile communication device that roams between multiple WiFi coverage areas (FIGS. 1 and 3, par. [0010] for a mobile node moving between the WLAN areas), the method comprising:

a. associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more WiFi access points (FIG. 2, par. [0029] and [0030] for MAS 104 receiving access request from mobile node 101);

b. establishing a first WiFi communication link between the mobile communication device and a first WiFi access point (par. [0029] for *performing communication* through the first access point 102 after receiving Access_Res and Association_Res);

c. registering the mobile communication device with the nomadic server [including providing an IP address of the first WiFi access point to the nomadic server] (par. [0029] for MAS confirming the location move based on received Assocaion_Req and Access_Req);

d. configuring a communication path to the mobile communication device via the nomadic server according to [the IP address of the first WiFi access point and] the first WiFi communication link (par. [0029] for MAS confirming the location move based on received Assocaion_Req, Access_Req, Access_Res and Association_Res; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

e. detecting movement of the mobile communication device into a coverage area of a second WiFi access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened);

f. registering the mobile communication device with the nomadic server [including an IP address of the second WiFi access point] (par. [0030] for sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed);

g. establishing a second WiFi communication link between the mobile communication device and the second WiFi access point (par. [0030] for the mobile node 101 can *perform communication* through the second access point 103); and

h. re-configuring the communication path according to [the IP address of the second WiFi access point and] the second WiFi communication link (par. [0030]

for the mobile node 101 can perform communication through the second access point 103; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold (par. [0030] for the mobile node 101 concludes that the signal intensity of the first access point has been weakened and notifying MAS 104 by sending Reassociation_Req and Handover_Req).

However, Rue may fail to explicitly disclose providing an IP address of the first WiFi access point and an IP address of the second WiFi access point to the nomadic server.

In the same field of endeavor, Wang discloses providing an IP address of the first WiFi access point and an IP address of the second WiFi access point to the nomadic server (FIGS. 2, 4 and 5, par. [0044] and [0045] for an IP address of the sending access point (e.g. claimed second access point) and the IP address of the target access point (e.g. the first access point) with consideration of FA, HA or DHCP as the claimed nomadic server).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the IP addresses of access points as taught by Wang to registration with an access point (when a mobile stations moves the coverage area of one access point to a new access point) as disclosed by Rue for purpose of

including the IP addresses of the access points during the accessing or registration process.

Consider **claim 18**, Rue as modified by Wang discloses the claimed invention **as applied to claim 14 above**, and Rue further discloses wherein registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific WiFi access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened, and sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed).

B. **Claims 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rue in view of Wang and further in view of **Kallio (US Patent Application Publication # 20020147008 A1)**.

Consider **claim 15 as applied to claim 14 above**, Rue as modified by Wang discloses the claimed invention except disclosing associating the mobile communication device to the nomadic server at the mobile switching center.

In the same field of endeavor, Kallio discloses associating the mobile communication device to the nomadic server at the mobile switching center (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the

Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

Consider **claim 16 as applied to claim 14 above**, Rue as modified by Wang discloses the claimed invention except providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

In the same field of endeavor, Kallio discloses providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the

mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

C. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over **McCormick et al. (US Patent Application Publication # 20040203802 A1)** (hereinafter McCormick) in view of Ibe.

Consider **claim 38**, McCormick discloses a method of providing communications between mobile communication devices (FIGS. 1 and 2, par. [0018] and [0019] for call process between calling party 101 and calling party 101'), the method comprising:

a. routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101');

b. routing the communication over a second communication link between the first cellular base station and a first controller device (FIGS. 1 and 2, par. [0019] for the call route or connection between the base station 133 and RNC 132);

c. routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208

inserting a parameter into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142);

d. routing the communication over a fourth communication link between the second controller device and a second cellular base station (FIGS. 1 and 2, par. [0014], [0019] and [0020] for the link between RNC 142 and base station 144); and

e. routing the communication over a fifth communication link between the second cellular base station and the second communication device (FIGS. 1 and 2, par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101').

McCormick further discloses the first communication link falls below a threshold (FIG. 1, par. [0015] and [0016] for the radio unit in the wireless subscriber device 101 re-tunes the transmitter-receiver equipment contained therein to use these designated radio frequencies and orthogonal coding. Once the communication connection is established, the control messages are typically transmitted to adjust transmitter power and change the transmission channel when required to handoff this wireless subscriber device 101 to an adjacent cell, when the subscriber moves from the present cell to one of the adjoining cells (i.e. the radio link 111 falls below a threshold)).

However, McCormick may fail to explicitly disclose wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold.

In the same field of endeavor, Ibe discloses the mobile communication device notifies an interface server if the first communication link falls below a threshold (col. 3 lines 32-54 for when a mobile device moves closer to the edge of a cell (of a network), it monitors SNR. If the SNR drops to a threshold d, then the mobile device sends Handoff request message to a Cellular Proxy (claimed interface server) connected to cellular network).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate sending a Handoff Request message to a Cellular Proxy when a mobile device moves and determines the SNR drops to a threshold level as taught by Ibe to the method of call routing when a device is handing off from one base station to an adjacent base station as disclosed by McCormick for purpose of requesting a handoff to an device for managing handoff and routing the calls.

Allowable Subject Matter

9. **Claim 11** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. **Claim 17** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments, see pages 6 to 10 of the Applicant's remarks, filed 06/08/2012, with respect to the rejection(s) of claim(s) 1-18 and 38 under U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new prior arts as indicated above.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

a. Jiang et al. (U.S. Patent # 7254119 B2) disclose Interworking mechanism between CDMA2000 and WLAN.

b. Chiou et al. (U.S. Patent # 6473413 B1) disclose Method for inter-IP-domain roaming across wireless networks.

c. Hicks, III et al. (U.S. Patent Application Publication # 20100074228 A1) disclose COMMUNICATION ENVIRONMENT SWITCHOVER.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allahyar Kasraian/
Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 13/240,776	Applicant(s)/Patent Under Reexamination GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-8,041,360 B2	10-2011	Ibe et al.	455/448
*	B	US-7,254,119 B2	08-2007	Jiang et al.	370/328
*	C	US-6,473,413 B1	10-2002	Chiou et al.	370/331
*	D	US-2003/0185172 A1	10-2003	Rue, Seon-Soo	370/331
*	E	US-2004/0114559 A1	06-2004	Wang, Huizhao	370/338
*	F	US-2002/0147008 A1	10-2002	Kallio, Janne	455/426
*	G	US-2004/0203802 A1	10-2004	McCormick et al.	455/445
*	H	US-2010/0074228 A1	03-2010	Hicks et al.	370/332
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
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	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
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	35	-	-							
	36	-	-							

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	13240776	GANESAN, VASUDEVAN
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	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012							
	37	-	-							
	38	✓	✓							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	28	(455/445.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 14:49
L3	3	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:23
L4	8	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:24
L5	9	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:25
L6	1	13/139637	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:48
S1	1	13/240776	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/19 16:05
S2	2	"20020147008".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 12:01
S3	3	("6909705", "20040229618", "6515983").pn.	US-PGPUB; USPAT	OR	ON	2012/10/21 12:31
S4	66	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (wlan (wirelss near2 LAN) wifi) with (hand$2off hand$2over (hand$3 adj2 (over off))) with (cellular gsm cdma umts) and (@ad<="20040106"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58

		@rlad<="20040106")				
S5	13	S4 and ((signal near2 strength) ssi rssi) with threshold	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S6	3	10/688608	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 17:09
S11	4	"roaming between wi-fi network" and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 23:38
S12	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (status condition) with (remov$3 delet$3) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 13:58
S13	71	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:20
S14	10	S13 and (access near2 point) with ip near2 address	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:22
S15	66	(370/338,331-334.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:55
S16	68	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 15:55
S17	27	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (mov$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:01
S18	17	(370/338,331-334.ccls.) and (first origina$5 old) near2 (access near2 point)	US-PGPUB; USPAT;	OR	ON	2012/10/26 16:52

		with (ip near2 address) and (second target new) near2 (access near2 point) with (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S19	25	("370"/$.ccls. "455"/$.ccls.) and (first origina$5 old) near2 (access near2 point) near8 (ip near2 address) and (second target new) near2 (access near2 point) near8 (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 17:06
S20	70	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:32
S21	28	S20 and called near2 (device terminal phone telephone party)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:35
S22	2	"20040214574".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:46
S23	42	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:51
S24	12	(455/445.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 11:59
S25	1	09/783818	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 13:13

EAST Search History (Interference)

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10/27/2012 5:55:34 PM
C:\Users\akasraian\Documents\EAST\Workspaces\13240776_01.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHAYAR KASRAIAN	2642

SEARCHED

Class	Subclass	Date	Examiner
Text search.	See search history.	2/29/2012	HN
370	338, 331	10/27/2012	AK
455	436, 439, 445	10/27/2012	AK

SEARCH NOTES

Search Notes	Date	Examiner
East. Text search.	2/29/2012	HN
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached seach strategy)	10/27/2012	AK
Inventor name and Assignee search in PALM ExPo and EAST	10/27/2012	AK
(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.)	10/27/2012	AK
EPO Data base: http://worldwide.espacenet.com/	10/27/2012	AK

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

/ALLAHYAR KASRAIAN/ Examiner.Art Unit 2642	

PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2642
Vasudevan Ganesan	Examiner: Kasraian, Allahyar
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED November 5, 2012**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
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AMENDMENT

Amendments to the Drawings begin on page 2 of this paper.

Amendments to the Specification begin on page 3 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 5 of this paper.

Remarks/Arguments begin on page 10 of this paper.

Amendments to the Drawings:

New sheets and replacement sheets have been filed herewith adding Figure 3 and 4 to the Drawings and renumbering Figures 1 and 2.

Amendments to the Specification:

Please insert the paragraphs below at page 8, line 12 of the Specification:

Figure 3 illustrates a method of providing communications for a mobile communication device that roams between multiple WiFi coverage areas according to some embodiments.

Figure 4 illustrates a method of providing communications between mobile communication devices according to some embodiments.

Please insert the paragraphs below between lines 17 and 18 of page 21 of the Specification:

Figure 3 illustrates a method of providing communications for a mobile communication device that roams between multiple WiFi coverage areas according to some embodiments. As shown in Figure 3, the mobile communication device is associated with a nomadic server, wherein the nomadic server is coupled to one or more WiFi access points at the step 302. A first WiFi communication link is established between the mobile communication device and a first WiFi access point at the step 304. The mobile communication device is registered with the nomadic server including providing an IP address of the first WiFi access point to the nomadic server at the step 306. A communication path to the mobile communication device is configured via the nomadic server according to the IP address of the first WiFi access point and the first WiFi communication link at the step 308. Movement of the mobile communication device into a coverage area of a second WiFi access point is detected at the step 310. The mobile communication device is registered with the nomadic server including an IP address of the second WiFi access point at the step 312. A second WiFi communication link is established between the mobile communication device and the second WiFi access point at the step 314. The communication path is re-configured according to the IP address of the second WiFi access point and the second WiFi communication link at the step 316. The mobile communication device notifies the nomadic server if the first communication link falls below a threshold at the step 318. The mobile communication device is associated with the nomadic server at the mobile switching center at the step 320. A routing association is provided to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server at the step 322. A termination communication intended for the mobile communication device from the mobile switching center is routed to the interface server

according to the routing association, and routing the termination communication from the interface server to the mobile communication device over the communication path at the step 324. Providing a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific WiFi access point by registering the mobile communication device with the nomadic server at the step 326.

Figure 4 illustrates a method of providing communications between mobile communication devices according to some embodiments. As shown in Figure 4, a communication is routed over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device at the step 402. The communication is routed over a second communication link between the first cellular base station and a first controller device at the step 404. The communication is routed over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network at the step 406. The communication is routed over a fourth communication link between the second controller device and a second cellular base station at the step 408. The communication is routed over a fifth communication link between the second cellular base station and the second communication device at the step 410. The mobile communication device notifies an interface server if the first communication link falls below a threshold at the step 412.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) A method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:
   a. establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network;
   b. monitoring a signal strength of the first wireless communication link;
   c. when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device;
   d. notifying the mobile communication device to terminate transmission over the first communication link; and
   e. re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network.

2. (currently amended) The method of claim 1 wherein the first type of wireless communication link comprises a ~~WiFi~~ IEEE 802.11 standard based communication link, and the first type of wireless network includes a ~~WiFi~~ IEEE 802.11 standard based network access point.

3. (original) The method of claim 2 wherein the second type of wireless network includes a wireless cellular network.

4. (currently amended) The method of claim 1 wherein establishing the first communication link includes routing through a ~~VOIP~~ voice over internet protocol network.

5. (original) The method of claim 1 wherein establishing the first communication link includes routing through a cellular network.

6. (currently amended) The method of claim 1 wherein establishing the second communication link includes routing through a ~~VOIP~~ voice over internet protocol network.

7. (original) The method of claim 1 wherein establishing the second communication link includes routing through a cellular network.

8. (original) The method of claim 1 further comprising providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network.

9. (original) The method of claim 8 further comprising providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server.

10. (original) The method of claim 9 further comprising routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the first type of wireless network.

11. (currently amended) The method of claim 10 further comprising when the connectivity status is not provided to the interface server, the ~~router~~ routing association is removed from the mobile switching center.

12. (original) The method of claim 1 further comprising registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold.

13. (original) The method of claim 12 further comprising setting up the second communication link with the end destination device and forwarding the second communication link to the interface server.

14. (currently amended) A method of providing communications for a mobile communication device that roams between multiple ~~WiFi~~ IEEE 802.11 standard based coverage areas, the method comprising:

a. associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more ~~WiFi~~ IEEE 802.11 standard based access points;

b. establishing a first ~~WiFi~~ IEEE 802.11 standard based communication link between the mobile communication device and a first ~~WiFi~~ IEEE 802.11 standard based access point;

c. registering the mobile communication device with the nomadic server including providing an IP address of the first ~~WiFi~~ IEEE 802.11 standard based access point to the nomadic server;

d. configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first ~~WiFi~~ IEEE 802.11 standard based access point and the first ~~WiFi~~ IEEE 802.11 standard based communication link;

e. detecting movement of the mobile communication device into a coverage area of a second ~~WiFi~~ IEEE 802.11 standard based access point;

f. registering the mobile communication device with the nomadic server including an IP address of the second ~~WiFi~~ IEEE 802.11 standard based access point;

g. establishing a second ~~WiFi~~ IEEE 802.11 standard based communication link between the mobile communication device and the second ~~WiFi~~ IEEE 802.11 standard based access point; and

h. re-configuring the communication path according to the IP address of the second ~~WiFi~~ IEEE 802.11 standard based access point and the second ~~WiFi~~ IEEE 802.11 standard based communication link;

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

15. (currently amended) The method of claim 14 further comprising associating the mobile communication device to the nomadic server at ~~the~~ a mobile switching center.

16. (original) The method of claim 14 further comprising providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

17. (currently amended) The method of claim 16 further comprising routing a ~~termination~~ communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the ~~termination~~ communication from the interface server to the mobile communication device over the communication path.

18. (original) The method of claim 14 wherein registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific WiFi access point.

Claims 19-37 (canceled).

38. (currently amended) A method of providing communications between mobile communication devices, the method comprising:
    a. routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device;
    b. routing the communication over a second communication link between the first cellular base station and a first controller device;
    c. routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises an Internet Protocol network;
    d. routing the communication over a fourth communication link between the second controller device and a second cellular base station; and

e. routing the communication over a fifth communication link between the second cellular base station and the second communication device;

wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold and further wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station.

REMARKS

The Applicant respectfully requests further examination and consideration of the claims in view of the above amendments and the arguments set forth fully below. Claims 1-18 and 38 were pending in this application. Within the Office Action, Claims 1-10, 12-18 and 38 have been rejected and Claim 11 has been objected to. By the above amendments, Claims 2, 4, 6, 11, 14, 15, 17 and 38 have been amended. Accordingly, Claims 1-18 and 38 are now pending.

Objections to Drawings

Within the Office Action, the Drawings have been objected to under 37 CFR 1.83(a) because they do not show every feature of the invention specified in method claims 14-18 and 38. By the above amendments, new sheets have been added to the Drawings including new Figures 3 and 4 illustrating the features of Claims 14-18 and 38. These new figures are supported within the Present Specification at least at page 5, line 17 to page 6, line 13, page 15, lines 1-18 and page 20, line 24 to page 21, line 17. Accordingly, no new matter has been added.

Amendments to the Specification

By the above amendments, the Present Specification has been amended to reference the steps of the newly added Figures 3 and 4. Support for these amendments is found within the Present Specification at least at page 5, line 17 to page 6, line 13, page 15, lines 1-18 and page 20, line 24 to page 21, line 17. Accordingly, no new matter has been added.

Objections to the Claims

Within the Office Action, Claims 2, 4, 6, 11, 14 and 38 have been objected to due to informalities. By the above amendments, Claims 2, 4, 6, 11, 14 and 38 have been amended to correct the indicated informalities. Accordingly, the objection should be withdrawn.

Rejections Under 35 U.S.C. § 112

Within the Office Action, Claims 15 and 17 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 15, it is asserted that "the mobile switching center" in line 2 of the claim lacks sufficient antecedent basis. By the above amendments, line 2 of Claim 15 has been

amended to recite "a mobile switching center." Accordingly, Claim 15 is now has sufficient antecedent basis, is definite and the rejection should be withdrawn.

Regarding Claim 17, it is asserted that "routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association, and routing the termination communication from the interface server to the mobile communication device over the communication path" is vague because it is unclear why the termination communication from the mobile switching center to the interface server happens since the independent claim 14 is related to roaming a mobile communication device between multiple WiFi coverage areas and there is nothing regarding a cellular network and connection to a mobile switching center. By the above amendments, Claim 17 has been amended to recite "routing a communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the communication from the interface server to the mobile communication device over the communication path." Thus, Claim 17 is no longer recites "termination communications" and instead relates to communications between the end destination device and the mobile communication device. Indeed, these communications often still involve a mobile switching center because although the mobile communication device is roaming between two WiFi networks, the end user device is calling via a mobile network. Accordingly, Claim 17 is now definite and the rejection should be withdrawn.

Rejections Under 35 U.S.C. § 102

Within the Office Action, Claims 1-10, 12 and 13 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 8,041,360 to Ibe et al. (hereinafter "Ibe"). The Applicant respectfully disagrees.

Ibe is directed to a method of seamless roaming between wireless local area networks and cellular carrier networks. Specifically, Ibe teaches enabling a user that originates a call in a WLAN and happens to go outside the range of the WLAN to automatically switch over to the cellular carrier network. [Ibe, Abstract] However, Ibe does not teach establishing a second communication link between the interface server and the **end destination device**. Instead, Ibe merely teaches that a second link is made between the cellular proxy (i.e. asserted interface server) and the mobile device, not between the cellular proxy and the end destination device.

Within the Office Action, it is asserted that Ibe teaches the above limitation by col. 3, lines 48-51, col. 3 line 55 to col. 4, line 12 and Figure 2 by the mobile device sending a handoff request message to the cellular proxy and the cellular proxy forwarding the call to the mobile device over a new connection established via the cellular network. [Office Action, pages 5-6] The Applicant respectfully disagrees. The cited portions of Ibe describe Figure 3, not Figure 2, and as described above, merely teach "a new connection" 320 between the cellular proxy and the mobile device, not between the cellular proxy and the end destination device. Specifically, the cellular proxy of Ibe is designed to receive calls from a cellular network and forward them to the mobile device over a TCP connection 310 through a WLAN network of a building. When the mobile device can no longer use the TCP connection 310, the cellular proxy uses the cellular network to call the mobile device 314 (not the end destination device to which it is already connected and was forwarding to the mobile device through the TCP connection 310). The cellular proxy actually receives its own call 316 because it receives all calls through the cellular network and so it just sends the call connection info to the mobile device itself 318. As a result, the cellular proxy and the mobile device form a new connection 320 through the cellular network (instead of the WLAN) and the cellular proxy continues to forward the end destination device data to the mobile device through this new connection 320. Throughout this process the same single link between the cellular proxy and the end destination device is kept and all that changes is how the cellular proxy is linked to the mobile device. This process is clearly illustrated in Figure 3 of Ibe which shows a dashed line indicating the new connection 320 between the cellular proxy and the mobile device through the cellular network. Therefore, it is clear that nowhere does Ibe teach establishing a second communication link between the interface server and the **end destination device**.

In contrast to the teachings of Ibe, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WiFi and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WiFi and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WiFi hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As

described above, Ibe does not teach establishing a second communication link between the interface server and the **end destination device**.

The independent Claim 1 is directed to a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks. The method comprises establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network, monitoring a signal strength of the first wireless communication link, when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device, notifying the mobile communication device to terminate transmission over the first communication link and re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network. As described above, Ibe does not teach establishing a second communication link between the interface server and the **end destination device**. For at least these reasons, the independent Claim 1 is allowable over the teachings of Ibe.

Claims 2-10, 12 and 13 are dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over Ibe. Accordingly, Claims 2-10, 12 and 13 are all also allowable as being dependent on an allowable base claim.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 14 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2003/0185172 to Rue et al. (hereinafter "Rue") in view of U.S. Patent Pub. No. 2004/0114559 to Wang et al. (hereinafter "Wang"). The Applicants respectfully disagree.

Rue is directed to an apparatus and method for supporting mobility between subnetworks of mobile nodes in a wireless LAN. [Rue, Abstract] However, Rue does not teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. Instead, Rue teaches nothing about a first communication link threshold, much less the mobile device notifying the nomadic server if the link falls below a threshold. Within the Office Action, it is asserted that this limitation is taught in Rue at paragraph 0030 by

"the mobile node 101 concludes that the signal intensity of the first access point has weakened," the reassociation_req S209 and the handover_req S211. [Office Action, page 12] The Applicants respectfully disagree.

"Concluding that a signal intensity has weakened" is not the same as determining if a signal has fallen below a threshold. Indeed, signals strengthen and weaken constantly due to numerous factors without ever crossing defined thresholds. Thus, even if Rue teaches concluding a signal has weakened, it still fails to teach the claimed "threshold" determination. Additionally, even if Rue did teach the use of a threshold, it would still fail to teach the claimed limitation because it does not teach that the mobile node 101 notifies the mobile access server 104 (i.e. the asserted nomadic server) if the signal weakens. Instead, Rue teaches that the mobile node simply "scans another new access point until it acquires a signal of the second access point 103." Scanning for an access point is not the same as notifying the mobile access server 104. For example, if the mobile node 101 is not able to find a new access point during its scan, there is nothing in Rue that teaches that the mobile access server 104 will ever be notified of the weakened signal detection. Thus, Rue cannot teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

Additionally, as recognized within the Office Action, Rue does not teach providing an IP address of the first and second WiFi access points to the nomadic server.

Wang is directed to inter-proxy communication protocol for mobile IP. Specifically, Wang teaches a first access point sends an inter-proxy request message to one or more additional access points that requests the IP configuration information for the node. [Wang, Abstract] However, Wang does not teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. Further, Wang does not teach providing an IP address of the first and second WiFi access points to the nomadic server. Within the Office Action, it is asserted that Wang teaches the claimed providing at Figures 2, 4 and 5 and paragraphs 0044 and 0045 by teaching an IP address of the sending access point (e.g. claimed second access point) and the IP address of the target access point (e.g. the first access point) with consideration of FA, HA or DHCP as the claimed nomadic server. [Office Action, page 12] The Applicants respectfully disagree. Even if the FA, HA or DHCP of Wang were equivalent to the nomadic server of the presently claimed invention, Wang would still fail to teach the above limitation because the inter-proxy messages (i.e. request and reply) are not to the nomadic server. Instead, they are messages between one or more access points 210, 212, not to the FA, HA or DHCP. Indeed, the whole purpose of Wang is to provide IP configuration data of

a node from the initial access point to other access points, not to the FA, HA or DHCP. [Wang, ¶ 0016] Therefore, neither the cited portion nor the remainder of Wang teaches providing an IP address of the first and second WiFi access points to the nomadic server.

As described above, Rue and Wang both fail to teach providing an IP address of the first and second WiFi access points to the nomadic server and wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. As a result, the combination of Rue and Wang does not teach the presently claimed invention.

In contrast to the teachings of Rue and Wang, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WiFi and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WiFi and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WiFi hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of Rue and Wang does not teach providing an IP address of the first and second WiFi access points to the nomadic server or wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

The independent Claim 14 is directed to a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas. The method comprises associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points, establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server, configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first IEEE 802.11 standard based access point and the first IEEE 802.11 standard based communication link, detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including an IP address of the second IEEE

802.11 standard based access point, establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point and re-configuring the communication path according to the IP address of the second IEEE 802.11 standard based access point and the second IEEE 802.11 standard based communication link; wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. As described above, the combination of Rue and Wang does not teach providing an IP address of the first and second IEEE 802.11 standard based access points to the nomadic server or wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. For at least these reasons, the independent Claim 14 is allowable over Rue, Wang and their combination.

Claim 18 is dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang and their combination. Accordingly, Claim 18 is also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 15-17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Rue and Wang in view of U.S. Patent Pub. No. 2002/0147008 to Kallio et al. (hereinafter "Kallio"). The Applicants respectfully disagree.

Claims 15-17 are dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang and their combination. Accordingly, Claims 15-17 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claim 38 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2004/0203802 to McCormick et al. (hereinafter "McCormick") in view of Ibe. The Applicants respectfully disagree.

McCormick is directed to a process for optimizing speech coding as a function of end user device characteristics. [McCormick, Abstract] However, McCormick does not teach wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station. Instead, the RNCs 132, 142 (i.e. asserted controller devices) of McCormick are both directly coupled to the base stations 133, 143, 144 as shown in Figure 1. Thus, McCormick does not teach the presently claimed invention.

As described above, Ibe is directed to a method of seamless roaming between wireless local area networks and cellular carrier networks. However, Ibe does not teach wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station. Instead, Ibe is only cited for the purpose of teaching the mobile communication device notifying an interface server if the first communication link falls below a threshold. Accordingly, Ibe does not teach the presently claimed invention.

As described above, McCormick and Ibe both fail to teach wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station. As a result, the combination of McCormick and Ibe does not teach the presently claimed invention.

In contrast to the teachings of McCormick and Ibe, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WiFi and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WiFi and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WiFi hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of McCormick and Ibe does not teach wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station.

The independent Claim 38 is directed to a method of providing communications between mobile communication devices. The method comprises routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device, routing the communication over a second communication link between the first cellular base station and a first controller device, routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network, routing the communication over a fourth communication link between the second controller device and a second cellular base station and routing the communication over a fifth communication link

between the second cellular base station and the second communication device, wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold and further wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station. As described above, neither McCormick, Ibe nor their combination teach wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station. For at least these reasons, the independent Claim 38 is allowable over McCormick, Ibe and their combination.

Allowable Subject Matter

Within the Office Action, it is asserted that Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to be independent including any intervening claims.

Within the Office Action, it is asserted that Claim 17 would be allowable if rewritten to be independent including any intervening claims and to overcome the rejection under 15 USC 112, second paragraph.

CONCLUSION

Applicant respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: December 6, 2012

By: /Jonathan O. Owens/
Jonathan O. Owens
Reg. No.: 37,902
Attorneys for Applicants

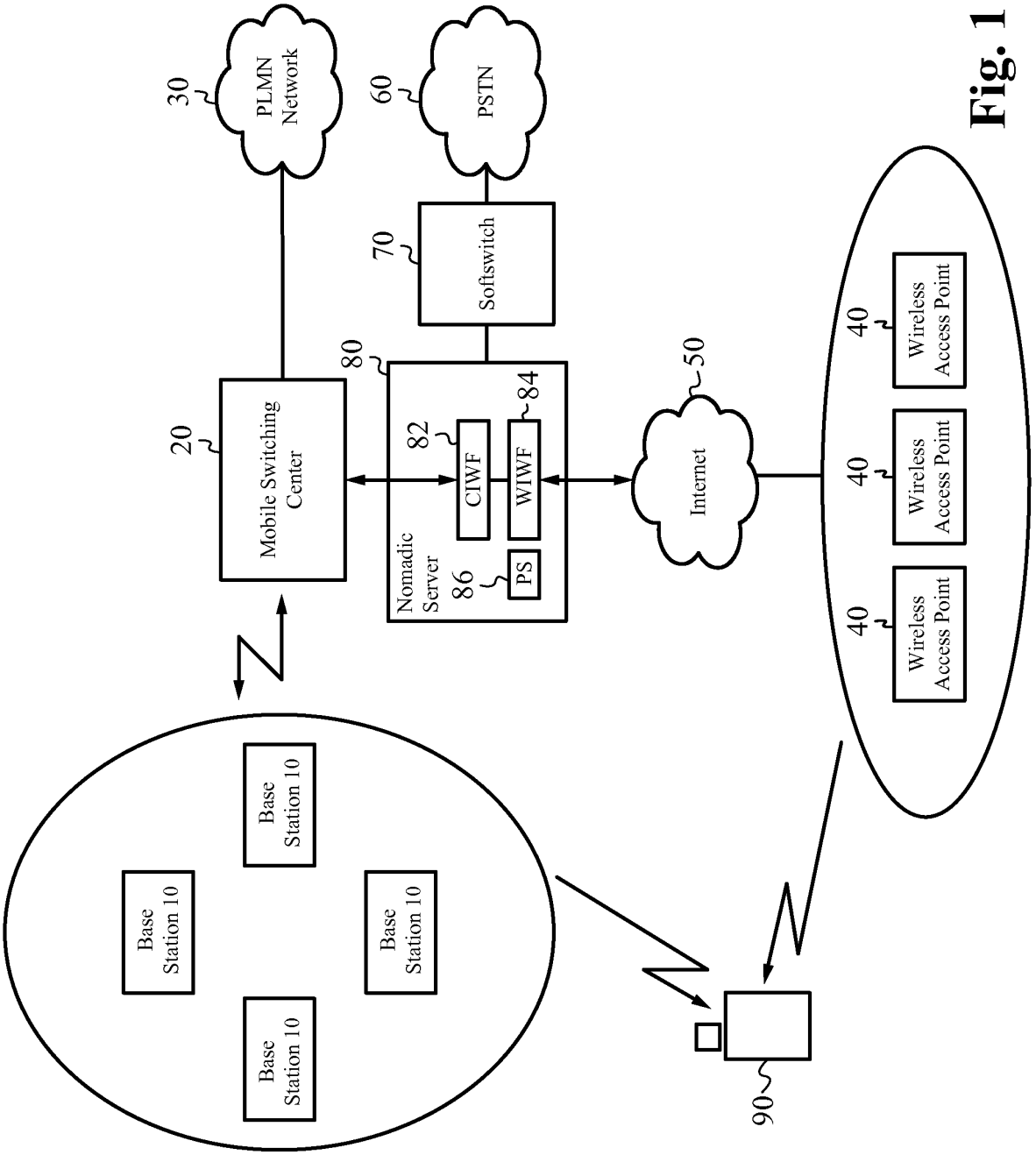

30
PLMN Network
60
PSTN
70
Softswitch
80
Nomadic Server
82
CIWF
84
WIWF
86
PS
20
Mobile Switching Center
50
Internet
40
Wireless Access Point
40
Wireless Access Point
40
Wireless Access Point
Base Station 10
Base Station 10
Base Station 10
Base Station 10
90

Fig. 1

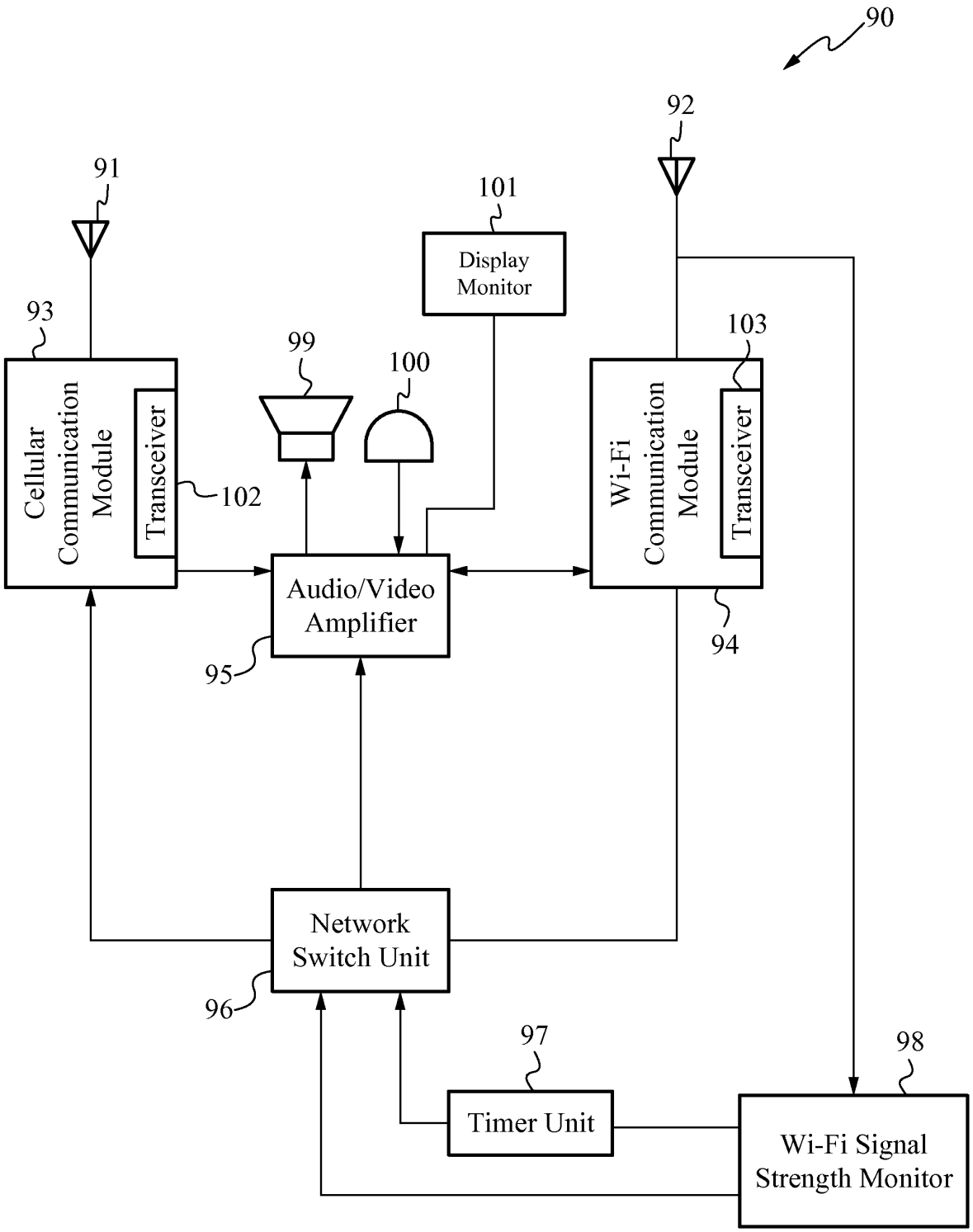

90
92
91
101
Display Monitor
93
99
100
103
Cellular Communication Module
Transceiver
102
Wi-Fi Communication Module
Transceiver
Audio/Video Amplifier
95
94
Network Switch Unit
96
97
98
Timer Unit
Wi-Fi Signal Strength Monitor

Fig. 2

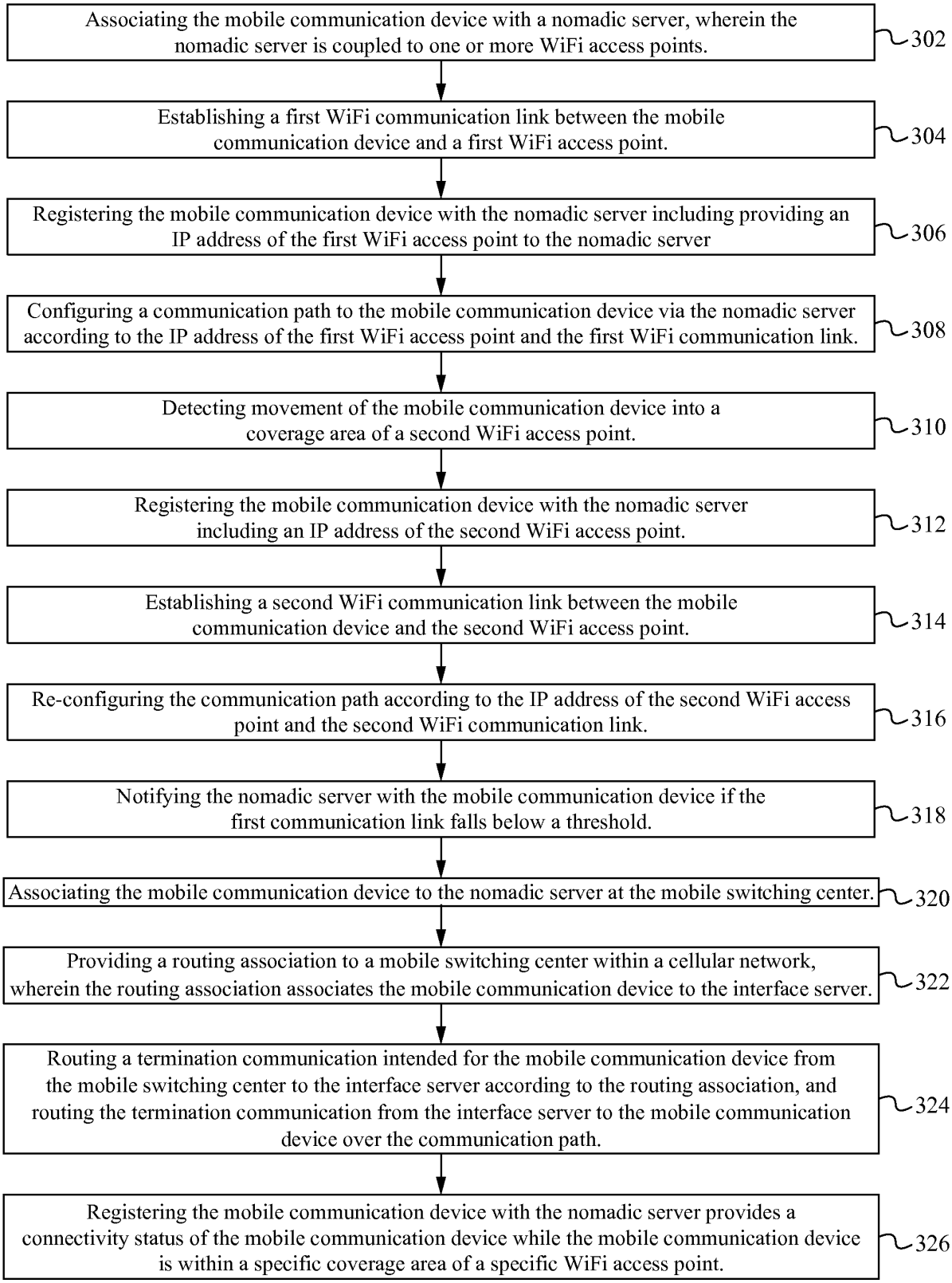

Associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more WiFi access points.
302
Establishing a first WiFi communication link between the mobile communication device and a first WiFi access point.
304
Registering the mobile communication device with the nomadic server including providing an IP address of the first WiFi access point to the nomadic server
306
Configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first WiFi access point and the first WiFi communication link.
308
Detecting movement of the mobile communication device into a coverage area of a second WiFi access point.
310
Registering the mobile communication device with the nomadic server including an IP address of the second WiFi access point.
312
Establishing a second WiFi communication link between the mobile communication device and the second WiFi access point.
314
Re-configuring the communication path according to the IP address of the second WiFi access point and the second WiFi communication link.
316
Notifying the nomadic server with the mobile communication device if the first communication link falls below a threshold.
318
Associating the mobile communication device to the nomadic server at the mobile switching center.
320
Providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.
322
Routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association, and routing the termination communication from the interface server to the mobile communication device over the communication path.
324
Registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific WiFi access point.
326

Fig. 3

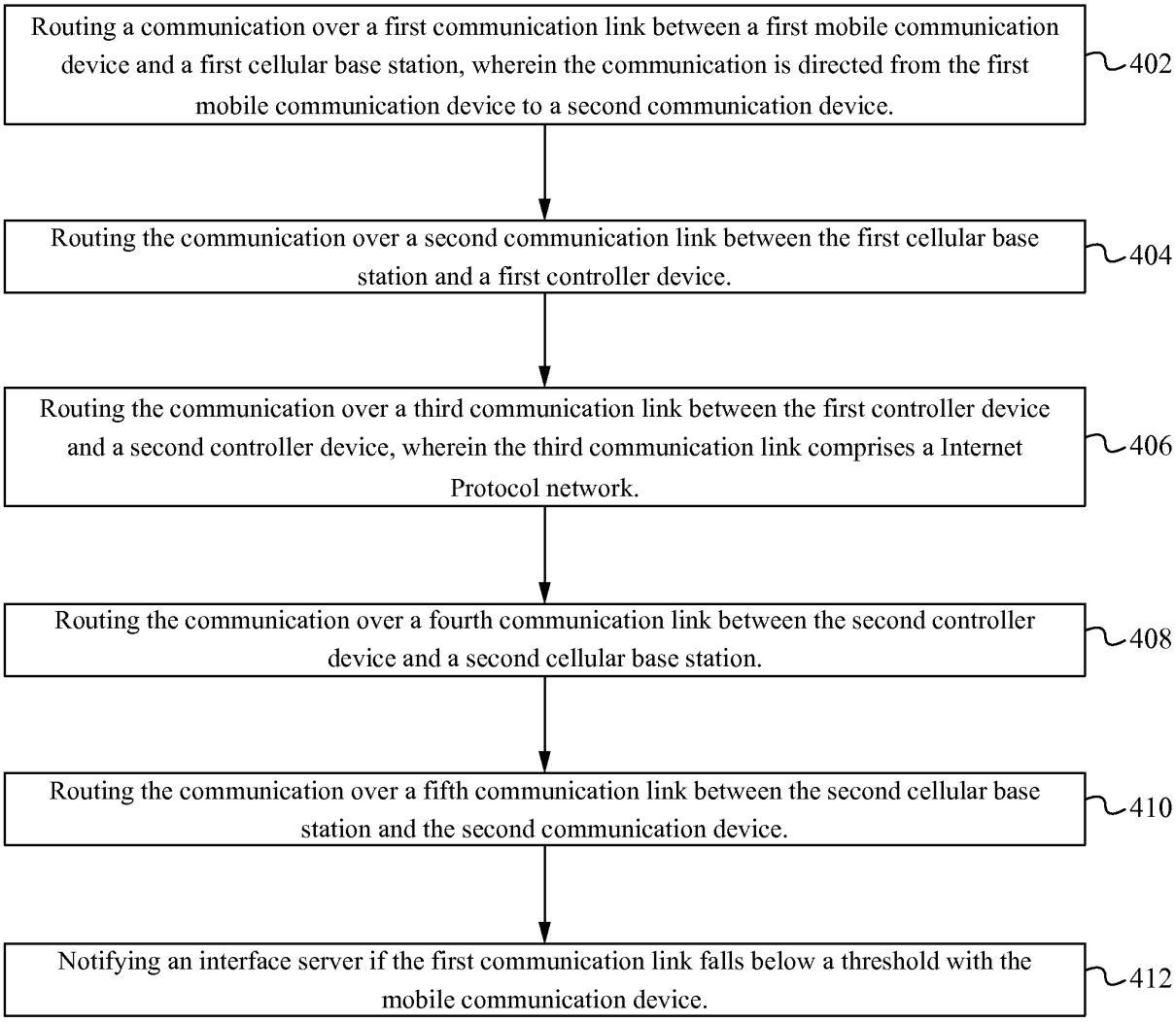

Routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device.
402
Routing the communication over a second communication link between the first cellular base station and a first controller device.
404
Routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network.
406
Routing the communication over a fourth communication link between the second controller device and a second cellular base station.
408
Routing the communication over a fifth communication link between the second cellular base station and the second communication device.
410
Notifying an interface server if the first communication link falls below a threshold with the mobile communication device.
412

Fig. 4

Electronic Acknowledgement Receipt

EFS ID:	14405085
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	06-DEC-2012
Filing Date:	22-SEP-2011
Time Stamp:	17:25:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response_12_6_2012.pdf	71648 e9ed9afec336d9c22a16e10aa4108bd29e29faa6	yes	18

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	9	
	Applicant Arguments/Remarks Made in an Amendment		10	18	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	Replacment_Drawings_12_6_2012.pdf	85519 b75ef2419fd61196088254a879cbaf46adc525bb	no	4
Warnings:					
Information:					
		Total Files Size (in bytes):	157167		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/240,776	09/22/2011	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT	12/06/2012	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0	X $31 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/ROZENIA HARMON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

28960 7590 02/07/2013

HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

EXAMINER	
KASRAIAN, ALLAHYAR	
ART UNIT	PAPER NUMBER
2642	
MAIL DATE	DELIVERY MODE
02/07/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	13/240,776	GANESAN, VASUDEVAN	
	Examiner	Art Unit	
	ALLAHYAR KASRAIAN	2642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2012*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-18 and 38* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-10,12-18 and 38* is/are rejected.

8)☒ Claim(s) *11* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Remarks

1. The present Office Action is based upon the Applicant's amendment filed on Dec. 06, 2012. **Claims 1-18 and 38** are now pending in the present application.

The objection to the drawing is withdrawn. The replacement-drawing sheet was received on Dec. 06, 2012 and acknowledged by the Examiner.

The "amendments to the specification" received on Dec. 06, 2012 is acknowledged by the Examiner.

Claim Objections

2. **Claims 1, 14 and 38** are objected to because of the following informalities:

i) On **lines 4, 8, 9, 12 and 14** of **claim 1**, delete "a." , "b.", "c.", "d.", and "e." before "establishing", "monitoring", "when", "notifying" and "re-directing"; (or replace them with --a)-- , --b)--, --c)--, --d)--, and --e)--; Note: The claim(s) must be in one sentence form only);

ii) On **lines 4, 7, 10, 13, 17, 19, 21, and 24** of **claim 14**, delete "a." , "b.", "c.", "d.", "e.", "f.", "g." and "h." before "associating", "establishing", "registering", "configuring", "detecting", "registering", "establishing" and "re-configuring"; (or replace them with --a)-- , --b)--, --c)--, --d)--, --e)--, --f)--, --g)--, and --h)-- ; Note: The claim(s) must be in one sentence form only);

iii) On **lines 3, 7, 9, 12 and 14** of **claim 38**, delete "a." , "b.", "c.", "d.", and "e." before "routing", "routing", "routing", "routing" and "routing"; (or replace them with --a)-- , --b)--, --c)--, --d)--, and --e)--; Note: The claim(s) must be in one sentence form only);

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(a):
(a) IN GENERAL.—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 or joint inventor of carrying out the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), first paragraph:
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.

Claim 38 is rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter (i.e. "*wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station*") which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

A. **Claims 1-10, 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ibe et al. (US Patent # 8041360 B2)** (hereinafter Ibe) in view of **Belkin et al. (US Patent # 7398088 B2)** (hereinafter Belkin).

Consider **claim 1**, Ibe discloses a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:

a. establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network (FIG. 2, col. 3, lines 32-36, for a dual mode mobile device originates a call (the claimed first communication link includes a first wireless communication link) within a WLAN (the claimed first type of wireless network) to other party);

b. monitoring a signal strength of the first wireless communication link (col. 3, lines 32-47, for monitoring signal quality by measuring SNR);

c. when the signal strength drops below a predetermined threshold (col. 3, lines 32-47, for when the SNR reaches some threshold value d), notifying an interface server with the mobile communication device [and establishing a second communication link between the interface server and the end destination device] (col. 3, lines 48-51 for sending a HandoffRequest message to cellular proxy (claimed interface server), and FIG. 2, col. 3, line 55 to col. 4, line 12 for forwarding the call to mobile device over a new connection established via the cellular network);

d. notifying the mobile communication device to terminate transmission over the first communication link (FIG. 2, col. 3 line 55 to col. 4 line 12 for commands the mobile station to switch its radio to the cellular network); and

e. re-directing the [second] communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network (FIG. 2, col. 3 line 55 to col. 4 line 12, for forwarding the call to mobile device over a new connection established via the cellular network; Note: the second communication link is considered as the link where the call is connected through a radio link (the claimed second wireless communication link) through the cellular network).

However, Ibe fails to disclose (when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and] establishing a second communication link between the interface server and

the end destination device and) establishing a second communication link between the interface server and the end destination device.

In the same field of endeavor, Belkin discloses (when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and) establishing a second communication link between the interface server and the end destination device (FIGS. 7-10, col.13, lines 32-44 for "When a handover situation becomes imminent…, the wireless communication unit 102 initiates a handover call… the handover call is routed via the network switching function 112 to *the network switching function 110*"; (note that "Generally if the signal quality level, e.g. signal to noise, or frame error rate or like assessment crosses some *threshold* it is determined that a handover is likely," see col. 5 line67 to col. 6 line 3); col. col. 13 line 45 to col. 14 line 2 for the *message requests that the peer unit 714* (claimed the end destination device) *route it's voice bearer RTP* (Real Time Protocol) to *the RTP port associated with the handover call, e.g. WAN leg or UA4 836 of the network switching function 710* (claimed interface server) and the RTP that will be rerouted as a result of the message being forwarded to UA1 730 (of the network switching function 710) and then to the peer unit 714 is the RTP from or for the peer unit 714; and note to the link 1002 of FIG. 10 and col. 15 lines 2-6, the bearer 1002 within the LAN 106 is an RTP stream; Note: all of the description related to FIG. 7 to FIG. 10 about the handover process of the wireless communication from the WLAN 106 network to the cellular WAN 108 should be considered).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate rerouting voice or data bearer RTP from a network switching function to a peer unit through a new RTP port associated with a handover call (when wireless communication unit 102 initiates a handover call and if the signal quality level crosses some *threshold*) as taught by Belkin to the method of seamless roaming between wireless LAN and cellular network disclosed by Ibe for purpose of providing a new communication link between the wireless communication unit and its peer unit during the handover call.

Consider **claim 2**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein the first type of wireless communication link comprises a IEEE 802.11 standard based communication link, and the first type of wireless network includes a IEEE 802.11 standard based network access point (FIG. 1 col. 3, lines 7-31, for WLAN connection and access point).

Consider **claim 3**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 2 above**, and Ibe further discloses wherein the second type of wireless network includes a wireless cellular network (FIG. 1, col. 3, line 55 to col. 4, line 12, for forwarding the call to mobile device over a new connection established via the cellular network).

Consider **claim 4**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the first communication link includes routing through a ovice over internet protocol network (FIG.

1, col. 2, lines 16-29 for the cellular proxy also provides the VoIP interface between the enterprise LAN and the PBX).

Consider **claim 5**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the first communication link includes routing through a cellular network (FIG. 3, col. 4 lines 13-26 for the situation when the other party is located in the cellular carrier network).

Consider **claim 6**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the second communication link includes routing through a VOIP network (FIGS. 1 and 2, with consideration of the teachings of: col. 2, lines 16-29 for the cellular proxy also provides the VoIP interface between the enterprise LAN and the PBX; and col. 3 line 55 to col. 4 line 12 for the situation when the other party is located in the PSTN; see also col. 5 lines 34-34 for "the bearer portion or actual voice and data is carried using VoIP (voice over IP) techniques and real time protocol (RTP)").

Consider **claim 7**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the second communication link includes routing through a cellular network (FIG. 1, col. 3, line 55 to col. 4, line 12, for forwarding the call to mobile device over a new connection established via the cellular network).

Consider **claim 8**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses the method further comprising

providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network (col. 3, lines 48-51 for when a mobile device experiences SNR measurement value of r, it sends a Handoff Request message to the Cellular Proxy via the TCP connection that exists between the two devices).

Consider **claim 9 as applied to claim 8 above**, and Belkin further discloses providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server (FIGS. 7-10, col. 13, lines 32-44 for the handover call is routed via the network switching function 112 to the network switching function 110).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate rerouting voice or data bearer RTP from a network switching function to a peer unit through a new RTP port associated with a handover call (when wireless communication unit 102 initiates a handover call and if the signal quality level crosses some *threshold*) as taught by Belkin to the method of seamless roaming between wireless LAN and cellular network disclosed by Ibe for purpose of providing a new communication link between the wireless communication unit and its peer unit during the handover call.

Consider **claim 10**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 9 above**, and Ibe further discloses routing a termination communication intended for the mobile communication device from the mobile switching

center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the first type of wireless network (col. 3, line 55 to col. 4, line 12, for the Cellular Proxy closing the TCP connection).

Consider **claim 12**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold (col. 3, line 55 to col. 4, line 12 for forwarding the call to mobile device over a new connection (claimed registering) established via the cellular network with an inherent MSC; see also MSC in FIGS. 7-10 of Belkin).

Consider **claim 13**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 12 above**, and Ibe further discloses setting up the second communication link with the end destination device and forwarding the second communication link to the interface server (FIG. 1, col. 3, line 55 to col. 4, line 12, for forwarding the call to mobile device over a new connection established via the cellular network through Cellular Proxy).

B. **Claims 14 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rue (US Patent Application Publication # 20030185172 A1)** in view of **Wang (US Patent Application Publication # 20040114559 A1)**.

Consider **claim 14**, Rue discloses a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas (FIGS. 1 and 3, par. [0010] for a mobile node moving between the WLAN areas), the method comprising:

a. associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points (FIG. 2, par. [0029] and [0030] for MAS 104 receiving access request from mobile node 101);

b. establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point (par. [0029] for *performing communication* through the first access point 102 after receiving Access_Res and Association_Res);

c. registering the mobile communication device with the nomadic server [including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server] (par. [0029] for MAS confirming the location move based on received Assocaion_Req and Access_Req);

d. configuring a communication path to the mobile communication device via the nomadic server according to [the IP address of the first IEEE 802.11 standard based access point and] the first IEEE 802.11 standard based communication link (par. [0029] for MAS confirming the location move based on received Assocaion_Req, Access_Req, Access_Res and Association_Res; Note: it is inherently taught and well-known that the a communication link is set up based

on the identification of a mobile station and the identification of an access point (or mobile station));

e. detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened);

f. registering the mobile communication device with the nomadic server [including an IP address of the second IEEE 802.11 standard based access point] (par. [0030] for sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed);

g. establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point (par. [0030] for the mobile node 101 can *perform communication* through the second access point 103); and

h. re-configuring the communication path according to [the IP address of the second IEEE 802.11 standard based access point and] the second IEEE 802.11 standard based communication link (par. [0030] for the mobile node 101 can perform communication through the second access point 103; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold (par. [0030] for the mobile node 101 concludes that the signal intensity of the first access point has been weakened and notifying MAS 104 by sending Reassociation_Req and Handover_Req).

However, Rue may fail to explicitly disclose providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server.

In the same field of endeavor, Wang discloses providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server (FIGS. 2, 4 and 5, par. [0044] and [0045] for an IP address of the sending access point (e.g. claimed second access point) and the IP address of the target access point (e.g. the first access point) with consideration of FA, HA or DHCP as the claimed nomadic server).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the IP addresses of access points as taught by Wang to registration with an access point (when a mobile stations moves the coverage area of one access point to a new access point) as disclosed by Rue for purpose of including the IP addresses of the access points during the accessing or registration process.

Consider **claim 18**, Rue as modified by Wang discloses the claimed invention **as applied to claim 14 above**, and Rue further discloses wherein registering the mobile communication device with the nomadic server provides a connectivity status of the

mobile communication device while the mobile communication device is within a specific coverage area of a specific IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened, and sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed).

C. **Claims 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rue** in view of **Wang** and further in view of **Kallio (US Patent Application Publication # 20020147008 A1)**.

Consider **claim 15 as applied to claim 14 above**, Rue as modified by Wang discloses the claimed invention except disclosing associating the mobile communication device to the nomadic server at the mobile switching center.

In the same field of endeavor, Kallio discloses associating the mobile communication device to the nomadic server at the mobile switching center (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a

Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

Consider **claim 16 as applied to claim 14 above**, Rue as modified by Wang discloses the claimed invention except providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

In the same field of endeavor, Kallio discloses providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

Consider **claim 17 as applied to claim 16 above**, Kallio further discloses routing a communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the communication from the interface server to the mobile communication device over the communication path (it is inherently taught and well-known that an end communication device can communicate a call to the mobile device in WLAN network, where the call is routed through MSC to WMC and finally to the mobile station).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

D. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over **McCormick et al. (US Patent Application Publication # 20040203802 A1)** (hereinafter McCormick) in view of **Ibe** and further in view of **Kao (US Patent # 6175737 B1)**.

Consider **claim 38**, McCormick discloses a method of providing communications between mobile communication devices (FIGS. 1 and 2, par. [0018] and [0019] for call process between calling party 101 and calling party 101'), the method comprising:

a. routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101');

b. routing the communication over a second communication link between the first cellular base station and a first controller device (FIGS. 1 and 2, par. [0019] for the call route or connection between the base station 133 and RNC 132);

c. routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208 inserting a parameter into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142);

d. routing the communication over a fourth communication link between the second controller device and a second cellular base station (FIGS. 1 and 2, par. [0014], [0019] and [0020] for the link between RNC 142 and base station 144); and

e. routing the communication over a fifth communication link between the second cellular base station and the second communication device (FIGS. 1 and

2, par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101').

McCormick further discloses the first communication link falls below a threshold (FIG. 1, par. [0015] and [0016] for the radio unit in the wireless subscriber device 101 re-tunes the transmitter-receiver equipment contained therein to use these designated radio frequencies and orthogonal coding. Once the communication connection is established, the control messages are typically transmitted to adjust transmitter power and change the transmission channel when required to handoff this wireless subscriber device 101 to an adjacent cell, when the subscriber moves from the present cell to one of the adjoining cells (i.e. the radio link 111 falls below a threshold)).

However, McCormick may fail to explicitly disclose wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold.

In the same field of endeavor, Ibe discloses the mobile communication device notifies an interface server if the first communication link falls below a threshold (col. 3 lines 32-54 for when a mobile device moves closer to the edge of a cell (of a network), it monitors SNR. If the SNR drops to a threshold d, then the mobile device sends Handoff request message to a Cellular Proxy (claimed interface server) connected to cellular network).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate sending a Handoff Request message to a Cellular Proxy when a mobile device moves and determines the SNR drops to a

threshold level as taught by Ibe to the method of call routing when a device is handing off from one base station to an adjacent base station as disclosed by McCormick for purpose of requesting a handoff to an device for managing handoff and routing the calls.

However, McCormick as modified by Ibe may fail to disclose explicitly wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station.

In the same field of endeavor, Kao wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station (FIG. 10, col. 1, lines 23-49, for each of the base stations 7 connects directly or indirectly to the base station controller 8 (BSC) using either a wireline or a second wireless interface; thus every BSC can be indirectly (or directly) connects to its respective base stations).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate indirect connections between base stations (BS) and their base stations controllers (BSC) as taught by Kan to the base stations and base stations (BS) and their base station controllers (RNC) as disclosed by McCormick as modified by Ibe for purpose of controlling plurality base stations of base stations in direct or indirect connections by a BSC.

Allowable Subject Matter

5. **Claim 11** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to rejection under 35 U.S.C § 102(e) and claims 1-10, 12 and 13, see pages 11 to 13 of the Applicant's remarks, filed 12/06/2012, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new prior arts as indicated above.

7. Applicant's arguments with respect to rejections under 35 USC § 103 and claims 14 have been fully considered but they are not persuasive.

In the bridging paragraph between pages 13 and 14 of the Applicant's remarks, Applicant argues, "Rue does not teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." Examiner respectfully disagrees. As indicated in the current and previous office actions, par. [0030] of Rue discloses the claimed invention.

In the first full paragraph of page 14 of the Applicant's remarks, Applicant argues, "'Concluding that a signal intensity has weakened' is not the same as determining if a signal has fallen below a threshold. Indeed, signals strengthen and weaken constantly due to numerous factors without ever crossing defined thresholds. Thus, even if Rue teaches concluding a signal has weakened, it still fails to teach the claimed 'threshold' determination." Examiner respectfully disagrees. Applicant should consider the whole

teachings of the paragraph 0030. A handoff process based on a signal quality is a well-known process for one skilled in the art. Paragraph [0030] clearly discloses: “If the mobile node moves to another access point, that is, a second access point, that is within the same one subnetwork, the mobile node 101 concludes that the signal intensity of the first access point has been weakened, and scans another new access point until it acquires a signal of the second access point 103. At step S209, the mobile node 101 transmits a reassociation request message (Reassociation_Req) to the second access point 103, and the second access point 103 transmits a handover request message (Handover_Req) to the mobile access server 104.” It is clearly well known to one skilled in the art that, generally, if the mobile moves to a second access point and requests for a handoff to the second access point (based on conclusion that the signal intensity of the first access point has been weakened and based on the received signal form the second access point), it means the signal intensity of the first access point crosses a threshold value.

In the same paragraph, Applicant further argues, “even if Rue did teach the use of a threshold, it would still fail to teach the claimed limitation because it does not teach that the mobile node 101 notifies the mobile access server 104 (i.e. the asserted nomadic server) if the signal weakens. Instead, Rue teaches that the mobile node simply ‘scans another new access point until it acquires a signal of the second access point 103.’ Scanning for an access point is not the same as notifying the mobile access server 104. For example, if the mobile node 101 is not able to find a new access point during its scan, there is nothing in Rue that teaches that the mobile access server 104

will ever be notified of the weakened signal detection. Thus, Rue cannot teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." Examiner respectfully traverses. It seems that Applicant does not consider the part, "the second access point 103 transmits a handover request message (Handover_Req) to the mobile access server" after the mobile node 101 transmits a reassociation request message (Reassociation_Req) to the second access point 103. This process can be considered and provides the same functionality as "*the mobile communication device notifies the nomadic server* if the first communication link falls below a threshold".

On the bridging paragraph between pages 14 and 15 of the Applicant's remarks, Applicant argues, "Even if the FA, HA or DHCP of Wang were equivalent to the nomadic server of the presently claimed invention, Wang would still fail to teach the above limitation because the inter-proxy messages (i.e. request and reply) are not to the nomadic server. Instead, they are messages between one or more access points 210,212, not to the FA, HA or DHCP. Indeed, the whole purpose of Wang is to provide IP configuration data of a node from the initial access point to other access points, not to the FA, HA or DHCP. [Wang, ¶ 0016] Therefore, neither the cited portion nor the remainder of Wang teaches providing an IP address of the first and second WiFi access points to the nomadic server." Examiner respectfully disagrees for several reasons. First, the purpose of using the inter-proxy messages between access points to "make an intelligent decision as to whether to *register* the nodes with their *Home Agent(s) via Foreign Agents on behalf of the nodes*", (see paragraph 0035). Paragraph 0035 further

discloses, “the first Foreign Agent 202 updates its visitor table to reflect the movement of the node 206. Similarly, the Home Agent's mobility binding table is updated to reflect the movement of the node 206 to the second Foreign Agent 204. Thus, the appropriate entry in the first Foreign Agent's visitor table and the Home Agent's mobility binding table may be deleted. A new entry is then entered in the Home Agent's mobility binding table and the second Foreign Agent's visitor table upon completion of registration of the mobile node with the Home Agent. Alternatively, the visitor table may be maintained and updated by the Access Point.” Therefore, the HA's mobility binding table and FAs’ visitor tables must be updated based on the IP addresses of the node and the IP addresses of related AP.

Second, in response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case Rue discloses MAS (claimed nomadic server) for confirming the location and movement of a mobile node by receiving/sending Assocation_Req, Access_Req, Access_Res and Association_Req (with consideration of that these messages are inherently associated with the identifications of the mobile node and the access point). The teachings of Rue is modified by the teachings of Wang for sending the IP addresses of the access points, which the mobile devices wishes to associated with, to an entity (i.e. MAS of Rue).

Applicant's arguments with regards to dependent claims 15-18 are based on the deficiency of the references to support the limitations of independent claim 14. The arguments are respectfully traversed for the same reason(s) as stated above for rejection of claim 14.

8. Applicant's arguments with respect to claim 38 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allahyar Kasraian/
Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 13/240,776	Applicant(s)/Patent Under Reexamination GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,398,088 B2	07-2008	Belkin et al.	455/439
*	B	US-6,175,737 B1	01-2001	Kao, Chiiming	455/447
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013						
	1	✓	✓	✓						
	2	✓	✓	✓						
	3	✓	✓	✓						
	4	✓	✓	✓						
	5	✓	✓	✓						
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	7	✓	✓	✓						
	8	✓	✓	✓						
	9	✓	✓	✓						
	10	✓	✓	✓						
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	12	✓	✓	✓						
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	15	✓	✓	✓						
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	35	-	-	-						
	36	-	-	-						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013						
	37	-	-	-						
	38	✓	✓	✓						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	13/240776	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/19 16:05
S2	2	"20020147008".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 12:01
S3	3	("6909705", "20040229618", "6515983").pn.	US-PGPUB; USPAT	OR	ON	2012/10/21 12:31
S4	66	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (wlan (wirelss near2 LAN) wifi) with (hand$2off hand$2over (hand$3 adj2 (over off))) with (cellular gsm cdma umts) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S5	13	S4 and ((signal near2 strength) ssi rssi) with threshold	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S6	3	10/688608	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 17:09
S11	4	"roaming between wi-fi network" and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 23:38
S12	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (status condition) with (remov$3 delet$3) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 13:58
S13	71	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2012/10/26 14:20

		hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	DERWENT; IBM_TDB			
S14	10	S13 and (access near2 point) with ip near2 address	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:22
S15	66	(370/338,331-334.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:55
S16	68	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 15:55
S17	27	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (mov$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:01
S18	17	(370/338,331-334.ccls.) and (first origina$5 old) near2 (access near2 point) with (ip near2 address) and (second target new) near2 (access near2 point) with (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:52
S19	25	("370"/$.ccls. "455"/$.ccls.) and (first origina$5 old) near2 (access near2 point) near8 (ip near2 address) and (second target new) near2 (access near2 point) near8 (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 17:06
S20	70	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:32
S21	28	S20 and called near2 (device terminal phone telephone party)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:35
S22	2	"20040214574".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:46

S23	42	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:51
S24	12	(455/445.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 11:59
S25	1	09/783818	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 13:13
S26	28	(455/445.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 14:49
S27	3	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:23
S28	8	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:24
S29	9	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:25
S30	1	13/139637	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:48
S31	191	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (destination end$2device end$2user) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/02 23:02
S32	39	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (receiving) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/03 00:20

S33	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$2hoc with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:18
S34	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with ad$2hoc same connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:21
S35	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with (peer adj4 peer) and connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:22
S36	5	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with bluetooth with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:24
S37	13	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (receiving destination) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:38
S38	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (terminat$5 end) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:42
S39	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:46
S40	99	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:50
S41	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular same (ad$2hoc (peer adj3 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:51
S42	16	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off	US-PGPUB; USPAT;	OR	ON	2013/02/04 22:23

		over)) hand$2off hand$2over) with ad$hoc and (@ad<="20040106" @rlad<="20040106")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S43	0	(370/310-350.ccls. "455"/$.ccls.) and re$direct$4 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:34
S44	16	(370/310-350.ccls. "455"/$.ccls.) and rout$3 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:35
S45	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S46	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (bluetooth) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S47	3	"20050070288"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:58
S48	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:06
S49	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (connect$4 establish$3) with (new second$2) near2 (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:08
S50	39	(455/41.1-41.3.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:20
S51	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:19

S52	23	("370"/$.ccls. "455"/$.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:21
S53	60	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and msc with connect$3 with (several mutiple plurality) near6 bsc and bsc with connect$3 with (bts (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 16:55
S54	11	("370"/$.ccls. "455"/$.ccls.) and (rnc bsc) with indirect$3 with connect$3 with (bs$2 (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 17:29

EAST Search History (Interference)

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2/6/2013 2:19:54 AM
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHAYAR KASRAIAN	2642

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
Text search.	See search history.	2/29/2012	HN
370	338, 331	10/27/2012	AK
455	436, 439, 445	10/27/2012	AK

SEARCH NOTES		
Search Notes	Date	Examiner
East. Text search.	2/29/2012	HN
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached seach strategy)	10/27/2012	AK
Inventor name and Assignee search in PALM ExPo and EAST	10/27/2012	AK
(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.)	10/27/2012	AK
EPO Data base: http://worldwide.espacenet.com/	10/27/2012	AK
Updated search	2/6/2013	AK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/ALLAHYAR KASRAIAN/ Examiner.Art Unit 2642	

PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2642
Vasudevan Ganesan	Examiner: Kasraian, Allahyar
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED February 7, 2013**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
	Customer No. 28960

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:
   - ~~a.~~ establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network;
   - ~~b.~~ monitoring a signal strength of the first wireless communication link;
   - ~~c.~~ when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device;
   - ~~d.~~ notifying the mobile communication device to terminate transmission over the first communication link; and
   - ~~e.~~ re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network.

2. (previously presented) The method of claim 1 wherein the first type of wireless communication link comprises a IEEE 802.11 standard based communication link, and the first type of wireless network includes a IEEE 802.11 standard based network access point.

3. (original) The method of claim 2 wherein the second type of wireless network includes a wireless cellular network.

4. (previously presented) The method of claim 1 wherein establishing the first communication link includes routing through a voice over internet protocol network.

5. (original) The method of claim 1 wherein establishing the first communication link includes routing through a cellular network.

6. (previously presented) The method of claim 1 wherein establishing the second communication link includes routing through a voice over internet protocol network.

7. (original) The method of claim 1 wherein establishing the second communication link includes routing through a cellular network.

8. (original) The method of claim 1 further comprising providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network.

9. (original) The method of claim 8 further comprising providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server.

10. (original) The method of claim 9 further comprising routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the first type of wireless network.

11. (previously presented) The method of claim 10 further comprising when the connectivity status is not provided to the interface server, the routing association is removed from the mobile switching center.

12. (original) The method of claim 1 further comprising registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold.

13. (original) The method of claim 12 further comprising setting up the second communication link with the end destination device and forwarding the second communication link to the interface server.

14. (currently amended) A method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas, the method comprising:

~~a.~~ associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points;

~~b.~~ establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point;

~~c.~~ registering the mobile communication device with the nomadic server including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server;

~~d.~~ configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first IEEE 802.11 standard based access point and the first IEEE 802.11 standard based communication link;

~~e.~~ detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point;

~~f.~~ registering the mobile communication device with the nomadic server including an IP address of the second IEEE 802.11 standard based access point;

~~g.~~ establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point; and

~~h.~~ re-configuring the communication path according to the IP address of the second IEEE 802.11 standard based access point and the second IEEE 802.11 standard based communication link;

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

15. (previously presented) The method of claim 14 further comprising associating the mobile communication device to the nomadic server at a mobile switching center.

16. (original) The method of claim 14 further comprising providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

17. (previously presented) The method of claim 16 further comprising routing a communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the communication from the interface server to the mobile communication device over the communication path.

18. (original) The method of claim 14 wherein registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific WiFi access point.

Claims 19-37 (canceled).

38. (currently amended) A method of providing communications between mobile communication devices, the method comprising:

~~a.~~ routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device;

~~b.~~ routing the communication over a second communication link between the first cellular base station and a first controller device;

~~c.~~ routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises an Internet Protocol network;

~~d.~~ routing the communication over a fourth communication link between the second controller device and a second cellular base station; and

~~c.~~ routing the communication over a fifth communication link between the second cellular base station and the second communication device;

wherein the first mobile communication device notifies an interface server if the first communication link falls below a threshold and further wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station ~~not directly coupled to the first cellular base station and the second cellular base station~~.

REMARKS

The Applicant respectfully requests further examination and consideration of the claims in view of the above amendments and the arguments set forth fully below. Claims 1-18 and 38 were pending in this application. Within the Office Action, Claims 1-10, 12-18 and 38 have been rejected and Claim 11 has been objected to. By the above amendments, Claims 1, 14 and 38 have been amended. Accordingly, Claims 1-18 and 38 are now pending.

Amendments to the Claims

By the above amendments, Claim 38 has been amended to recite "wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station." Support for this amendment can be found throughout the Present Specification which describes numerous operations of the server 80 with non-cellular networks such as a WIFI network, a PLMN and a PSTN (i.e. independent of a cellular network). Accordingly, no new matter has been added.

Objections to the Claims

Within the Office Action, Claims 1, 14 and 38 have been objected to due to informalities. By the above amendments, Claims 1, 14 and 38 have been amended to correct the indicated informalities. Accordingly, the objection should be withdrawn.

Rejections Under 35 U.S.C. § 112

Within the Office Action, Claim 38 has been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, it is asserted that the phrase "wherein the first controller device and the second controller device are not directly coupled to the first cellular base station and the second cellular base station" contains subject matter which was not described in the specification in such a way as to reasonably convey ton one skilled in the art that the inventor had possession of the invention at the time the application was filed. By the above amendments, Claim 38 has been amended to remove the above phrase. Accordingly, the rejection should be withdrawn.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 1-10, 12 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 8,041,360 to Ibe et al. (hereinafter "Ibe") in view of U.S. Patent No. 7,398,088 to Belkin et al. (hereinafter "Belkin"). The Applicant respectfully disagrees.

Ibe is directed to a method of seamless roaming between wireless local area networks and cellular carrier networks. Specifically, Ibe teaches enabling a user that originates a call in a WLAN and happens to go outside the range of the WLAN to automatically switch over to the cellular carrier network. [Ibe, Abstract] However, as recognized within the Office action, Ibe does not teach establishing a **second** communication link between the interface server and the **end destination device**. Instead, Ibe merely teaches that a second link is made between the cellular proxy (i.e. asserted interface server) and the mobile device, not between the cellular proxy and the end destination device.

Belkin is directed to a handover method and apparatus. Specifically, Belkin teaches obtaining call information corresponding to an ongoing call over a first network and ascertaining a handover number for use by one of the wireless communication units to originate a handover call via a second network, wherein the handover number terminates in the first network for use in facilitating the handover of the communication to the second network. [Belkin, Abstract] However, Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device**. Instead, Belkin merely teaches establishing a second connection 302 between the mobile communication device 102 and the network switching function 710 (asserted interface server), not between the end destination device 714 and the network switching function 710.

Within the Office Action, it is asserted that the above limitation is taught in Belkin at col. 13, lines 32-44 by "when a handover situation becomes imminent ..., the wireless communication unit 102 initiates a handover call ... the handover call is routed via the network switching function 112 to the network switching function 710." [Office Action, page 6] However, as described above, this citation merely indicates a second link is established between the asserted interface server and the mobile communication device, not the interface server and the end destination device (i.e. peer CU 714). It is also asserted within the Office Action that the above limitation is taught in Belkin at col. 13, line 45 to col. 14, line 2 by "the message requests that the

peer unit 713 route it's voice bearer RTP to the RTP port associated with the handover call, e.g. WAN leg or UA4 836 of the network switching function 710 and the RTP will be rerouted as a result of the message being forwarded to UA1 730." [Office Action, page 6] However, all that the above citation teaches is that the **single** connection between the peer CU 714 and the network switching function 710 is **rerouted** to the handover call port, not that a **second** connection is made between the peer CU 714 and the network switching function 710. Rerouting a connection is not the same as establishing a second connection. As a result, Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device**.

Thus, because neither Ibe nor Belkin teach establishing a **second** communication link between the interface server and the **end destination device**, nor can their combination. Accordingly, the combination of Ibe and Belkin does not teach the presently claimed invention.

In contrast to the teachings of the combination of Ibe and Belkin, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WiFi and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WiFi and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WiFi hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of Ibe and Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device**.

The independent Claim 1 is directed to a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks. The method comprises establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network, monitoring a signal strength of the first wireless communication link, when the signal strength drops below a predetermined threshold, notifying an interface

server with the mobile communication device and establishing a second communication link between the interface server and the end destination device, notifying the mobile communication device to terminate transmission over the first communication link and re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network. As described above, the combination of Ibe and Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device**. For at least these reasons, the independent Claim 1 is allowable over Ibe, Belkin and their combination.

Claims 2-10, 12 and 13 are dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the combination of Ibe and Belkin. Accordingly, Claims 2-10, 12 and 13 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 14 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2003/0185172 to Rue et al. (hereinafter "Rue") in view of U.S. Patent Pub. No. 2004/0114559 to Wang et al. (hereinafter "Wang"). The Applicants respectfully disagree.

Rue is directed to an apparatus and method for supporting mobility between subnetworks of mobile nodes in a wireless LAN. [Rue, Abstract] However, Rue does not teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. Instead, Rue teaches nothing about a first communication link threshold, much less the mobile device notifying the nomadic server if the link falls below a threshold.

Within the previous Office Action, it is asserted that this limitation is taught in Rue at paragraph 0030 by "the mobile node 101 concludes that the signal intensity of the first access point has weakened," the reassociation_req S209 and the handover_req S211. [Office Action, page 12] The Applicants respectfully disagree. "Concluding that a signal intensity has weakened" is not the same as determining if a signal has fallen below a threshold. Indeed, signals strengthen and weaken constantly due to numerous factors without ever crossing defined thresholds. Thus, even if Rue teaches concluding a signal has weakened, it still fails to teach the claimed "threshold" determination.

Additionally, even if Rue did teach the use of a threshold, it would still fail to teach the claimed limitation because it does not teach that the mobile node 101 notifies the mobile access server 104 (i.e. the asserted nomadic server) if the signal weakens. Instead, Rue teaches that the mobile node simply "scans another new access point until it acquires a signal of the second access point 103." Scanning for an access point is not the same as notifying the mobile access server 104. For example, if the mobile node 101 is not able to find a new access point during its scan, there is nothing in Rue that teaches that the mobile access server 104 will ever be notified of the weakened signal detection.

Within the current Office Action, it is asserted that the transmission of the handover request message to the mobile access server after the mobile node transmits a reassociation request message to the second access point teaches the above limitation because it provides the same functionality as the claimed limitation. [Office Action, page 22] The Applicants respectfully disagree because the process of Rue does not provide the same functionality as the claimed notification process. The claimed limitation recites "wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." In other words, the notification is conditioned on the link falling below the threshold. In contrast, the "notification" or handoff request of Rue is conditioned on the mobile node finding a new access point. These different conditions result in different functioning by the mobile nodes. The presently claimed invention will always notify the server if the link falls below the threshold, whereas the mobile device of Rue only "notifies" the server if **both** the link falls below the threshold **and** a new access point is found. Thus, as described above, if no new node is found the presently claimed mobile device will still notify the server whereas the mobile device of Rue will not. That is not the same functionality. Thus, Rue does teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

Additionally, as recognized within the Office Action, Rue does not teach providing an IP address of the first and second WIFI access points to the nomadic server.

Wang is directed to inter-proxy communication protocol for mobile IP. Specifically, Wang teaches a first access point sends an inter-proxy request message to one or more additional access points that requests the IP configuration information for the node. [Wang, Abstract] However, Wang does not teach wherein the mobile communication device notifies the nomadic

server if the first communication link falls below a threshold. Further, Wang does not teach providing an IP address of the first and second WIFI access points to the nomadic server. Within the previous Office Action, it is asserted that Wang teaches the claimed providing at Figures 2, 4 and 5 and paragraphs 0044 and 0045 by teaching an IP address of the sending access point (e.g. claimed second access point) and the IP address of the target access point (e.g. the first access point) with consideration of FA, HA or DHCP as the claimed nomadic server. [Office Action, page 12] The Applicants respectfully disagree. Even if the FA, HA or DHCP of Wang were equivalent to the nomadic server of the presently claimed invention, Wang would still fail to teach the above limitation because the inter-proxy messages (i.e. request and reply) are not to the nomadic server. Instead, they are messages between one or more access points 210, 212, not to the FA, HA or DHCP. Indeed, the whole purpose of Wang is to provide IP configuration data of a node from the initial access point to other access points, not to the FA, HA or DHCP. [Wang, ¶ 0016] Therefore, neither the cited portion nor the remainder of Wang teaches providing an IP address of the first and second WIFI access points to the nomadic server.

Within the current Office Action, it is first asserted that the FA and HA of Wang update their visitor and binding tables to reflect movement of nodes and therefore, the tables must be updated based on the IP addresses of the node and the related access point. [Office Action, pages 22-23] The current Office Action then asserts that Wang is only cited for the purpose of teaching sending IP addresses of access points to an entity such as MAS (the asserted nomadic server of Rue). [Office Action, page 23] However, Wang does not teach that it is beneficial to send IP addresses of access points to anything (i.e. any entity), rather it only teaches that it is beneficial to send them in between access points 210, 212. Thus, if the destination of Wang's messages is removed from the combination, the combination becomes improper due to lack of motivation. To put it another way, simply because Wang teaches sending access points IP addresses to one type of entity does not mean it can be used to teach sending the IP addresses to all other types of entities (e.g. MAS of Rue). Such logic would mean that Wang combined with Rue would teach the sending of IP addresses to every type of entity taught in Rue simply because Wang teaches sending addresses to "something" and Rue teaches different "somethings". This clearly cannot be the case. As a result, 1) if the destination of other access points of Wang is included in the modification of Rue, Wang fails to teach sending the IP addresses to a nomadic server and 2) if the destination of other access points of Wang is replaced with "entities," then the combination of Rue and Wang is improper. In either case, the combination of Rue and Wang does not teach providing an IP address of the first and second WIFI access points to the nomadic server.

As described above, Rue and Wang both fail to teach providing an IP address of the first and second WIFI access points to the nomadic server and wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. As a result, the combination of Rue and Wang does not teach the presently claimed invention.

In contrast to the teachings of Rue and Wang, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WIFI and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WIFI and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WIFI hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of Rue and Wang does not teach providing an IP address of the first and second WIFI access points to the nomadic server or wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

The independent Claim 14 is directed to a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas. The method comprises associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points, establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server, configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first IEEE 802.11 standard based access point and the first IEEE 802.11 standard based communication link, detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including an IP address of the second IEEE 802.11 standard based access point, establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11

standard based access point and re-configuring the communication path according to the IP address of the second IEEE 802.11 standard based access point and the second IEEE 802.11 standard based communication link; wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. As described above, the combination of Rue and Wang does not teach providing an IP address of the first and second IEEE 802.11 standard based access points to the nomadic server or wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. For at least these reasons, the independent Claim 14 is allowable over Rue, Wang and their combination.

Claim 18 is dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang and their combination. Accordingly, Claim 18 is also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 15-17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Rue and Wang in view of U.S. Patent Pub. No. 2002/0147008 to Kallio et al. (hereinafter "Kallio"). The Applicants respectfully disagree.

Claims 15-17 are dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang and their combination. Accordingly, Claims 15-17 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claim 38 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2004/0203802 to McCormick et al. (hereinafter "McCormick") in view of Ibe and further in view of U.S. Patent No. 6,175,737 to Kao et al. (hereinafter "Kao"). The Applicants respectfully disagree.

McCormick is directed to a process for optimizing speech coding as a function of end user device characteristics. [McCormick, Abstract] However, McCormick does not teach wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station. Instead, the RNCs 132, 142 (i.e. asserted controller devices) of McCormick both only operate as a part of the cellular networks 131, 141 as shown in Figure 1. Thus, McCormick does not teach the presently claimed invention.

As described above, Ibe is directed to a method of seamless roaming between wireless local area networks and cellular carrier networks. However, Ibe does not teach wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station. Instead, Ibe is only cited for the purpose of teaching the mobile communication device notifying an interface server if the first communication link falls below a threshold. Accordingly, Ibe does not teach the presently claimed invention.

Kao is directed to a method and apparatus for wireless communications for base station controllers. Specifically, Kao teaches a cellular communication system having a plurality of wireless in-band channels and a plurality of cells with a plurality of mobile stations in each cell. [Kao, Abstract] However, Kao does not teach wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station. Instead, the BSC 8 of Kao only operates as a part of the cellular communication system 9. [See Kao, col. 5, line 66 to col. 6, line 36 and Figure 1] Accordingly, Kao does not teach the presently claimed invention.

As described above, McCormick, Ibe and Kao all fail to teach wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station As a result, the combination of McCormick, Ibe and Kao does not teach the presently claimed invention.

In contrast to the teachings of McCormick, Ibe and Kao, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WIFI and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WIFI and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WIFI hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of McCormick, Ibe and Kao does not teach wherein the first controller device and the second controller device

are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station.

The independent Claim 38 is directed to a method of providing communications between mobile communication devices. The method comprises routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device, routing the communication over a second communication link between the first cellular base station and a first controller device, routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network, routing the communication over a fourth communication link between the second controller device and a second cellular base station and routing the communication over a fifth communication link between the second cellular base station and the second communication device, wherein the first mobile communication device notifies an interface server if the first communication link falls below a threshold and further wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station. As described above, the combination of McCormick, Ibe and Kao does not teach wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station. For at least these reasons, the independent Claim 38 is allowable over McCormick, Ibe, Kao and their combination.

Allowable Subject Matter

Within the Office Action, it is asserted that Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to be independent including any intervening claims. Claim 11 is dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the combination of Ibe and Belkin. Accordingly, Claim 11 is also allowable as being dependent on an allowable base claim.

CONCLUSION

Applicant respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: April 7, 2013

By: /Jonathan O. Owens/
Jonathan O. Owens
Reg. No.: 37,902
Attorneys for Applicants

Electronic Acknowledgement Receipt

EFS ID:	15452170
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	07-APR-2013
Filing Date:	22-SEP-2011
Time Stamp:	17:00:35
Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response_4_7_2013.pdf	70642 39744e3259e370126026f5546b18a3efdea6f493	yes	17

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	6
	Applicant Arguments/Remarks Made in an Amendment	7	17
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/240,776	Filing Date 09/22/2011	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	04/07/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

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LIE
/BRENDA HARRISON/

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Kasraian, Allahyar
	Attorney Docket Number	HAVA-00401

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Kasraian, Allahyar
	Attorney Docket Number	HAVA-00401

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Examiner Signature		Date Considered	

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Kasraian, Allahyar
	Attorney Docket Number	HAVA-00401

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2013-05-01
Name/Print	Jonathan O. Owens	Registration Number	37,902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	15667858
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	01-MAY-2013
Filing Date:	22-SEP-2011
Time Stamp:	17:39:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_5_1_2013.pdf	612371 ea2f9a1f8062a07b7ba9c1ac4768d5621b6671bb	no	4

Warnings:	
Information:	

Total Files Size (in bytes):	612371

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

28960 7590 06/27/2013

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EXAMINER	
KASRAIAN, ALLAHYAR	
ART UNIT	PAPER NUMBER
2642	
MAIL DATE	DELIVERY MODE
06/27/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/240,776	Applicant(s) GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7 April 2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-18 and 38* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-18 and 38* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Interim copies:

a)☐ All b)☐ Some c)☐ None of the: Interim copies of the priority documents have been received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *05/01/2013*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Remarks

1. The present Office Action is based upon the Applicant's amendment filed on April 07, 2013. **Claims 1-18 and 38** are now pending in the present application. **This Action is made FINAL**.

2. The objection to the drawing is withdrawn. The replacement-drawing sheet was received on April 07, 2013 and acknowledged by the Examiner.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(a):
(a) IN GENERAL.—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 or joint inventor of carrying out the invention.

4. The following is a quotation of 35 U.S.C. 112 (pre-AIA), first paragraph:
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.

A. **Claim 38** is rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter (i.e. "*wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station*") which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-

AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Information Disclosure Statement

5. The information disclosure statement submitted on 05/01/2013 has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

A. **Claims 1-10, 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ibe et al. (US Patent # 8041360 B2)** (hereinafter Ibe) in view of **Belkin et al. (US Patent # 7398088 B2)** (hereinafter Belkin).

Consider **claim 1**, Ibe discloses a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:

establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network (FIG. 2, col. 3, lines 32-36, for a dual mode mobile device originates a call (the claimed first communication link includes a first wireless communication link) within a WLAN (the claimed first type of wireless network) to other party);

monitoring a signal strength of the first wireless communication link (col. 3, lines 32-47, for monitoring signal quality by measuring SNR);

when the signal strength drops below a predetermined threshold (col. 3, lines 32-47, for when the SNR reaches some threshold value d), notifying an interface server with the mobile communication device [and establishing a second communication link between the interface server and the end destination device] (col. 3, lines 48-51 for sending a HandoffRequest message to cellular proxy (claimed interface server), and FIG. 2, col. 3, line 55 to col. 4, line 12 for forwarding the call to mobile device over a new connection established via the cellular network);

notifying the mobile communication device to terminate transmission over the first communication link (FIG. 2, col. 3 line 55 to col. 4 line 12 for commands the mobile station to switch its radio to the cellular network); and

re-directing the [second] communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network (FIG. 2, col. 3 line 55 to col. 4 line 12, for forwarding the call to mobile device over a

new connection established via the cellular network; Note: the second communication link is considered as the link where the call is connected through a radio link (the claimed second wireless communication link) through the cellular network).

However, Ibe fails to disclose (when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and] establishing a second communication link between the interface server and the end destination device and) establishing a second communication link between the interface server and the end destination device.

In the same field of endeavor, Belkin discloses (when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and) establishing a second communication link between the interface server and the end destination device (FIGS. 7-10, col.13, lines 32-44 for "When a handover situation becomes imminent…, the wireless communication unit 102 initiates a handover call… the handover call is routed via the network switching function 112 to *the network switching function 110*"; (note that "Generally if the signal quality level, e.g. signal to noise, or frame error rate or like assessment crosses some *threshold* it is determined that a handover is likely," see col. 5 line67 to col. 6 line 3); col. col. 13 line 45 to col. 14 line 2 for the *message requests that the peer unit 714* (claimed the end destination device) *route it's voice bearer RTP* (Real Time Protocol) to *the RTP port associated with the handover call, e.g. WAN leg or UA4 836 of the network switching function 710* (claimed interface server) and the RTP that will be rerouted as a result of the message being forwarded to UA1 730 (of the network switching function

710) and then to the peer unit 714 is the RTP from or for the peer unit 714; and note to the link 1002 of FIG. 10 and col. 15 lines 2-6, the bearer 1002 within the LAN 106 is an RTP stream; Note: all of the description related to FIG. 7 to FIG. 10 about the handover process of the wireless communication from the WLAN 106 network to the cellular WAN 108 should be considered).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate rerouting voice or data bearer RTP from a network switching function to a peer unit through a new RTP port associated with a handover call (when wireless communication unit 102 initiates a handover call and if the signal quality level crosses some *threshold*) as taught by Belkin to the method of seamless roaming between wireless LAN and cellular network disclosed by Ibe for purpose of providing a new communication link between the wireless communication unit and its peer unit during the handover call.

Consider **claim 2**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein the first type of wireless communication link comprises a IEEE 802.11 standard based communication link, and the first type of wireless network includes a IEEE 802.11 standard based network access point (FIG. 1 col. 3, lines 7-31, for WLAN connection and access point).

Consider **claim 3**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 2 above**, and Ibe further discloses wherein the second type of wireless network includes a wireless cellular network (FIG. 1, col. 3, line 55 to col. 4,

line 12, for forwarding the call to mobile device over a new connection established via the cellular network).

Consider **claim 4**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the first communication link includes routing through a ovice over internet protocol network (FIG. 1, col. 2, lines 16-29 for the cellular proxy also provides the VoIP interface between the enterprise LAN and the PBX).

Consider **claim 5**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the first communication link includes routing through a cellular network (FIG. 3, col. 4 lines 13-26 for the situation when the other party is located in the cellular carrier network).

Consider **claim 6**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the second communication link includes routing through a VOIP network (FIGS. 1 and 2, with consideration of the teachings of: col. 2, lines 16-29 for the cellular proxy also provides the VoIP interface between the enterprise LAN and the PBX; and col. 3 line 55 to col. 4 line 12 for the situation when the other party is located in the PSTN; see also col. 5 lines 34-34 for "the bearer portion or actual voice and data is carried using VoIP (voice over IP) techniques and real time protocol (RTP)").

Consider **claim 7**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses wherein establishing the second

communication link includes routing through a cellular network (FIG. 1, col. 3, line 55 to col. 4, line 12, for forwarding the call to mobile device over a new connection established via the cellular network).

Consider **claim 8**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses the method further comprising providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network (col. 3, lines 48-51 for when a mobile device experiences SNR measurement value of r, it sends a Handoff Request message to the Cellular Proxy via the TCP connection that exists between the two devices).

Consider **claim 9 as applied to claim 8 above**, and Belkin further discloses providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server (FIGS. 7-10, col. 13, lines 32-44 for the handover call is routed via the network switching function 112 to the network switching function 110).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate rerouting voice or data bearer RTP from a network switching function to a peer unit through a new RTP port associated with a handover call (when wireless communication unit 102 initiates a handover call and if the signal quality level crosses some *threshold*) as taught by Belkin to the method of seamless roaming between wireless LAN and cellular network disclosed by Ibe for

purpose of providing a new communication link between the wireless communication unit and its peer unit during the handover call.

Consider **claim 10**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 9 above**, and Ibe further discloses routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the first type of wireless network (col. 3, line 55 to col. 4, line 12, for the Cellular Proxy closing the TCP connection).

Consider **claim 12**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 1 above**, and Ibe further discloses registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold (col. 3, line 55 to col. 4, line 12 for forwarding the call to mobile device over a new connection (claimed registering) established via the cellular network with an inherent MSC; see also MSC in FIGS. 7-10 of Belkin).

Consider **claim 13**, Ibe as modified by Belkin discloses the claimed invention **as applied to claim 12 above**, and Ibe further discloses setting up the second communication link with the end destination device and forwarding the second communication link to the interface server (FIG. 1, col. 3, line 55 to col. 4, line 12, for

forwarding the call to mobile device over a new connection established via the cellular network through Cellular Proxy).

B. **Claims 14 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rue (US Patent Application Publication # 20030185172 A1)** in view of **Wang (US Patent Application Publication # 20040114559 A1)**.

Consider **claim 14**, Rue discloses a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas (FIGS. 1 and 3, par. [0010] for a mobile node moving between the WLAN areas), the method comprising:

associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points (FIG. 2, par. [0029] and [0030] for MAS 104 receiving access request from mobile node 101);

establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point (par. [0029] for *performing communication* through the first access point 102 after receiving Access_Res and Association_Res);

registering the mobile communication device with the nomadic server [including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server] (par. [0029] for MAS confirming the location move based on received Assocaion_Req and Access_Req);

configuring a communication path to the mobile communication device via the nomadic server according to [the IP address of the first IEEE 802.11 standard based access point and] the first IEEE 802.11 standard based communication link (par. [0029] for MAS confirming the location move based on received Assocaion_Req, Access_Req, Access_Res and Association_Res; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened);

registering the mobile communication device with the nomadic server [including an IP address of the second IEEE 802.11 standard based access point] (par. [0030] for sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed);

establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point (par. [0030] for the mobile node 101 can *perform communication* through the second access point 103); and

re-configuring the communication path according to [the IP address of the second IEEE 802.11 standard based access point and] the second IEEE 802.11

standard based communication link (par. [0030] for the mobile node 101 can perform communication through the second access point 103; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold (par. [0030] for the mobile node 101 concludes that the signal intensity of the first access point has been weakened and notifying MAS 104 by sending Reassociation_Req and Handover_Req).

However, Rue may fail to explicitly disclose providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server.

In the same field of endeavor, Wang discloses providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server (FIGS. 2, 4 and 5, par. [0044] and [0045] for an IP address of the sending access point (e.g. claimed second access point) and the IP address of the target access point (e.g. the first access point) with consideration of FA, HA or DHCP as the claimed nomadic server).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the IP addresses of access points as taught by Wang to registration with an access point (when a mobile stations moves the coverage area of one access point to a new access point) as disclosed by Rue for purpose of

including the IP addresses of the access points during the accessing or registration process.

Consider **claim 18**, Rue as modified by Wang discloses the claimed invention **as applied to claim 14 above**, and Rue further discloses wherein registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened, and sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed).

C. **Claims 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rue** in view of **Wang** and further in view of **Kallio (US Patent Application Publication # 20020147008 A1)**.

Consider **claim 15 as applied to claim 14 above**, Rue as modified by Wang discloses the claimed invention except disclosing associating the mobile communication device to the nomadic server at the mobile switching center.

In the same field of endeavor, Kallio discloses associating the mobile communication device to the nomadic server at the mobile switching center (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of

the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

Consider **claim 16 as applied to claim 14 above**, Rue as modified by Wang discloses the claimed invention except providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

In the same field of endeavor, Kallio discloses providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a

Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

Consider **claim 17 as applied to claim 16 above**, Kallio further discloses routing a communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the communication from the interface server to the mobile communication device over the communication path (it is inherently taught and well-known that an end communication device can communicate a call to the mobile device in WLAN network, where the call is routed through MSC to WMC and finally to the mobile station).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang for purpose of updating location of the mobile device at the MSC.

D. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over **McCormick et al. (US Patent Application Publication # 20040203802 A1)**

(hereinafter McCormick) in view of **Ibe** and further in view of **Kao (US Patent # 6175737 B1)**.

Consider **claim 38**, McCormick discloses a method of providing communications between mobile communication devices (FIGS. 1 and 2, par. [0018] and [0019] for call process between calling party 101 and calling party 101'), the method comprising:

routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101');

routing the communication over a second communication link between the first cellular base station and a first controller device (FIGS. 1 and 2, par. [0019] for the call route or connection between the base station 133 and RNC 132);

routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208 inserting a parameter into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142);

routing the communication over a fourth communication link between the second controller device and a second cellular base station (FIGS. 1 and 2, par. [0014], [0019] and [0020] for the link between RNC 142 and base station 144); and

routing the communication over a fifth communication link between the second cellular base station and the second communication device (FIGS. 1 and 2, par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101').

McCormick further discloses the first communication link falls below a threshold (FIG. 1, par. [0015] and [0016] for the radio unit in the wireless subscriber device 101 re-tunes the transmitter-receiver equipment contained therein to use these designated radio frequencies and orthogonal coding. Once the communication connection is established, the control messages are typically transmitted to adjust transmitter power and change the transmission channel when required to handoff this wireless subscriber device 101 to an adjacent cell, when the subscriber moves from the present cell to one of the adjoining cells (i.e. the radio link 111 falls below a threshold)).

However, McCormick may fail to explicitly disclose wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold.

In the same field of endeavor, Ibe discloses the mobile communication device notifies an interface server if the first communication link falls below a threshold (col. 3 lines 32-54 for when a mobile device moves closer to the edge of a cell (of a network), it monitors SNR. If the SNR drops to a threshold d, then the mobile device sends Handoff request message to a Cellular Proxy (claimed interface server) connected to cellular network).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate sending a Handoff Request message to

a Cellular Proxy when a mobile device moves and determines the SNR drops to a threshold level as taught by Ibe to the method of call routing when a device is handing off from one base station to an adjacent base station as disclosed by McCormick for purpose of requesting a handoff to an device for managing handoff and routing the calls.

However, McCormick as modified by Ibe may fail to disclose explicitly wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station.

In the same field of endeavor, Granberg discloses wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station (FIG. 1, col. 5, lines 1-17, a central control point 11 is coupled to multiple Mobile Switching Centers (MSCs) 14. These *MSCs 14 may be provided in different mobile communication networks operated by different network operators*. Thus the each of MSC is independent from a certain cellular network).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate Mobile Switching Centers that can provide different mobile communication networks operated by different network operators in as taught by Granberg to the base stations and base stations (BS) and

their base station controllers (RNC) as disclosed by McCormick as modified by Ibe for purpose of sharing a MSC between different operators.

Allowable Subject Matter

7. **Claim 11** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed 04/07/2013 have been fully considered but they are not persuasive.

On the third paragraph of page 8 of the Applicant's remarks, Applicant argues, "Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device**. Instead, Belkin merely teaches establishing a second connection 302 between the mobile communication device 102 and the network switching function 710 (asserted interface server), not between the end destination device 714 and the network switching function 710." Examiner respectfully disagrees. As indicated in the current and previous office actions, Belkin discloses the claimed limitations in FIGS. 7-10 col. 13 line 45 to col. 14 line 2 for the *message requests that* ***the peer unit 714*** (claimed the end destination device) *route it's voice bearer RTP* (Real Time Protocol) to *the RTP port associated with the handover call, e.g. WAN leg or UA4 836 of* ***the network switching function 710*** (claimed interface server) and *the RTP that will be rerouted as a result of the message being forwarded to UA1 730* (of the

network switching function 710) **and then to the peer unit 714 is the RTP from or for the peer unit 714**, and also in FIG. 10 and col. 15 lines 2-6, **the link the link 1002** within the LAN 106 is an RTP stream.

On the bridging paragraph between pages 8 and 9 of the Applicant's remarks, Applicant argues, "this citation merely indicates a second link is established between the asserted interface server and the mobile communication device, not the interface server and the end destination device (i.e. peer CU 714). It is also asserted within the Office Action that the above limitation is taught in Belkin at col. 13, line 45 to col. 14, line 2 by "the message requests that the peer unit 713 route it's voice bearer RTP to the RTP port associated with the handover call, e.g. WAN leg or UA4 836 of the network switching function 710 and the RTP will be rerouted as a result of the message being forwarded to UA1 730." [Office Action, page 6] However, all that the above citation teaches is that the sing!e connection between the peer CU 714 and the network switching function 710 is rerouted to the handover call port, not that a second connection is made between the peer CU 714 and the network switching function 710. Rerouting a connection is not the same as establishing a second connection. As a result, Belkin does not teach establishing a second communication link between the interface server and the end destination device." Examiner respectfully disagrees. Applicant does not consider the teachings of Belkin (as cited in the previous and current office actions) regarding the *message requests that* ***the peer unit 714*** (claimed the end destination device) *route it's voice bearer RTP* (Real Time Protocol) to *the RTP port associated with the handover call, e.g. WAN leg or UA4 836 of* ***the network switching***

function 710 (claimed interface server) and *the RTP that will be rerouted as a result of the message being forwarded to UA1 730* (of the network switching function 710) **and then to the peer unit 714 is the RTP from or for the peer unit 714**, and also in FIG. 10 and col. 15 lines 2-6, **the link the link 1002** within the LAN 106 is an RTP stream.

Applicant's arguments with regards to dependent claims 2-10, 12 and 13 are based on the deficiency of the references to support the limitations of independent claim 1. The arguments are respectfully traversed for the same reason(s) as stated above for rejection of claim 1.

9. Applicant's arguments with respect to rejections under 35 USC § 103 and claim 14 has been fully considered but they are not persuasive.

In the third full paragraph between pages 10 of the Applicant's remarks, Applicant argues, "Rue does not teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." Examiner respectfully disagrees. As indicated in the current and previous office actions, par. [0030] of Rue discloses the claimed invention.

In the last paragraph of page 10 of the Applicant's remarks, Applicant argues, "'Concluding that a signal intensity has weakened' is not the same as determining if a signal has fallen below a threshold. Indeed, signals strengthen and weaken constantly due to numerous factors without ever crossing defined thresholds. Thus, even if Rue teaches concluding a signal has weakened, it still fails to teach the claimed 'threshold' determination." Examiner respectfully disagrees. Applicant should consider the whole teachings of the paragraph 0030. A handoff process based on a signal quality is a well-

known process for one skilled in the art. Paragraph [0030] clearly discloses: “If the mobile node moves to another access point, that is, a second access point, that is within the same one subnetwork, the mobile node 101 concludes that the signal intensity of the first access point has been weakened, and scans another new access point until it acquires a signal of the second access point 103. At step S209, the mobile node 101 transmits a reassociation request message (Reassociation_Req) to the second access point 103, and the second access point 103 transmits a handover request message (Handover_Req) to the mobile access server 104.” It is clearly well known to one skilled in the art that, generally, if the mobile moves to a second access point and requests for a handoff to the second access point (based on conclusion that the signal intensity of the first access point has been weakened and based on the received signal form the second access point), it means the signal intensity of the first access point crosses a threshold value.

In the first paragraph of page 11 of the Applicant’s remarks, Applicant further argues, “even if Rue did teach the use of a threshold, it would still fail to teach the claimed limitation because it does not teach that the mobile node 101 notifies the mobile access server 104 (i.e. the asserted nomadic server) if the signal weakens. Instead, Rue teaches that the mobile node simply ‘scans another new access point until it acquires a signal of the second access point 103.’ Scanning for an access point is not the same as notifying the mobile access server 104. For example, if the mobile node 101 is not able to find a new access point during its scan, there is nothing in Rue that teaches that the mobile access server 104 will ever be notified of the weakened signal

detection. Thus, Rue cannot teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." Examiner respectfully traverses. It seems that Applicant does not consider the part, "the second access point 103 transmits a handover request message (Handover_Req) to the mobile access server" after the mobile node 101 transmits a reassociation request message (Reassociation_Req) to the second access point 103. This process can be considered and provides the same functionality as "*the mobile communication device notifies the nomadic server* if the first communication link falls below a threshold".

On the second paragraph of page 11 of the Applicant's remarks, Applicant argues, "Within the current Office Action, it is asserted that the transmission of the handover request message to the mobile access server after the mobile node transmits a reassociation request message to the second access point teaches the above limitation because it provides the same functionality as the claimed limitation…The Applicants respectfully disagree because the process of Rue does not provide the same functionality as the claimed notification process. The claimed limitation recites 'wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.' In other words, the notification is conditioned on the link falling below the threshold. In contrast, the 'notification' or handoff request of Rue is conditioned on the mobile node finding a new access point. These different conditions result in different functioning by the mobile nodes. *The presently claimed invention will always notify the server if the link falls below the threshold, whereas the mobile device of Rue on12 'notifies' the server if both* ***the link falls below the threshold*** *and a new*

access point is found. Thus, as described above, if no new node is found the presently claimed mobile device will still notify the server whereas the mobile device of Rue will not. That is not the same functionality. Thus, Rue does teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." (Emphasis added by Examiner). Examiner respectfully disagrees. First, there is nothing in the claim to disclose "*always notify the server if the link falls below the threshold*". Second, it seems that Applicant admits that Rue discloses *the mobile device of Rue on12 'notifies' the server* ***the link falls below the threshold*** (and *a new access point is found*). Third, Applicant should note to the limitation, "detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point" which would results the limitation "wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." Therefore, the purpose of notifying a server when a mobile device detects the communication link is week (or below a threshold value) is to hand off the mobile device to another base station or access point. Therefore, both the claimed limitations and the teachings of Rue have the same functionality.

On the bridging paragraph between pages 11 and 12 of the Applicant's remarks, Applicant argues, "Even if the FA, HA or DHCP of Wang were equivalent to the nomadic server of the presently claimed invention, Wang would still fail to teach the above limitation because the inter-proxy messages (i.e. request and reply) are not to the nomadic server. Instead, they are messages between one or more access points 210,212, not to the FA, HA or DHCP. Indeed, the whole purpose of Wang is to provide

IP configuration data of a node from the initial access point to other access points, not to the FA, HA or DHCP. [Wang, ¶ 0016] Therefore, neither the cited portion nor the remainder of Wang teaches providing an IP address of the first and second WiFi access points to the nomadic server." Examiner respectfully disagrees for several reasons. First, the purpose of using the inter-proxy messages between access points to "make an intelligent decision as to whether to *register* the nodes with their *Home Agent(s) via Foreign Agents on behalf of the nodes*", (see paragraph 0035). Paragraph 0035 further discloses, "the first Foreign Agent 202 updates its visitor table to reflect the movement of the node 206. Similarly, the Home Agent's mobility binding table is updated to reflect the movement of the node 206 to the second Foreign Agent 204. Thus, the appropriate entry in the first Foreign Agent's visitor table and the Home Agent's mobility binding table may be deleted. A new entry is then entered in the Home Agent's mobility binding table and the second Foreign Agent's visitor table upon completion of registration of the mobile node with the Home Agent. Alternatively, the visitor table may be maintained and updated by the Access Point." Therefore, the HA's mobility binding table and FAs' visitor tables must be updated based on the IP addresses of the node and the IP addresses of related AP's.

Second, in response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case Rue discloses MAS (claimed nomadic server) for confirming the

location and movement of a mobile node by receiving/sending Assocation_Req, Access_Req, Access_Res and Association_Req (with consideration of that these messages are inherently associated with the identifications of the mobile node and the access point). The teachings of Rue is modified by the teachings of Wang for sending the IP addresses of the access points, which the mobile devices wishes to associated with, to an entity (i.e. MAS of Rue).

On the last paragraph of page 12 of the Applicant's remarks, Applicant argues, "Within the current Office Action, it is first asserted that the FA and HA of Wang update their visitor and binding tables to reflect movement of nodes and therefore, the tables must be updated based on the IP addresses of the node and the related access point. [Office Action, pages 22-23] The current Office Action then asserts that Wang is only cited for the purpose of teaching sending IP addresses of access points to an entity such as MAS (the asserted nomadic server of Rue). [Office Action, page 23] However, Wang does not teach that it is beneficial to send IP addresses of access points to anything (i.e. any entity), rather it only teaches that it is beneficial to send them in between access points 210, 212. Thus, if the destination of Wang's messages is removed from the combination, the combination becomes improper due to lack of motivation. To put it another way, simply because Wang teaches sending access points IP addresses to one type of entity does not mean it can be used to teach sending the IP addresses to all other types of entities (e.g. MAS of Rue). Such logic would mean that Wang combined with Rue would teach the sending of IP addresses to every type of entity taught in Rue simply because Wang teaches sending addresses to "something"

and Rue teaches different "somethings". This clearly cannot be the case. As a result, 1) if the destination of other access points of Wang is included in the modification of Rue, Wang fails to teach sending the IP addresses to a nomadic server and 2) if the destination of other access points of Wang is replaced with "entities," then the combination of Rue and Wang is improper. In either case, the combination of Rue and Wang does not teach providing an IP address of the first and second WIFI access points to the nomadic server." Examiner respectfully traverses. Applicant still has not considered "the HA's mobility binding table and FAs' visitor tables must be updated based on the IP addresses of the node and the IP addresses of related AP's," but still insisting the beneficial of sending the IP addresses between access points 210, 212. Paragraph [0034] of Wang discloses, "A node typically obtains a MAC address associated with *an intended destination IP address* by sending an ARP request to the Foreign Agent *via the Access Point*. Second, a node may attempt to *send an actual IP data packet* via the Foreign Agent. Thus, in this instance, *if the node's IP address* does not belong to the local subnet, the receipt of the data packet by the Access Point triggers the sending of a control packet (i.e., registration request packet) by the Access Point. Third, *an access point may receive a DHCP reply designated to the node*, and *the Access Point can save the node's IP address obtained from the DHCP reply in its client table for future reference*." Therefore, the cited parts of Wang clearly discloses sending and receiving IP addresses to HA, FA and DHCP (alone or in combination) of Wang were equivalent to the nomadic server of the claimed invention. As indicated the motivation is to use the IP addresses of access points as taught by Wang to registration

with an access point (when a mobile stations moves the coverage area of one access point to a new access point) as disclosed by Rue for purpose of including the IP addresses of the access points during the accessing or registration process.

Applicant's arguments with regards to dependent claims 15-18 are based on the deficiency of the references to support the limitations of independent claim 14. The arguments are respectfully traversed for the same reason(s) as stated above for rejection of claim 14.

10. Applicant's arguments with respect to claim 38 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

On the bridging paragraph between pages 15 and 16 of the Applicant remarks, Applicant asserts, "the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WIFI and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WIFI and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WIFI hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point." However, there is nothing in the Applicant's description to provide support for the new limitation that one

ordinary skilled in the art can conclude, "*the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station*".

11. Applicant(s) is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set forth in the claims, *In re Tanaka et al.* 193 USPQ 139, (CCPA) 1977.

12. The references made herein are done so for the convenience of the Applicant. They are not meant to be limiting and should be considered as a whole.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allahyar Kasraian/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 13/240,776	Applicant(s)/Patent Under Reexamination GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,195,543 B1	02-2001	Granberg, Christer	455/407
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
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	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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	Q					
	R					
	S					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Kasraian, Allahyar
	Attorney Docket Number	HAVA-00401

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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/A.K./	1	20030012350	A1	2003-01-16	Wong et al.	
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Receipt date: 05/01/2013	Application Number	13240776 13240776 - GAU: 2642
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
(Not for submission under 37 CFR 1.99)	Art Unit	2642
	Examiner Name	Kasraian, Allahyar
	Attorney Docket Number	HAVA-00401

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EXAMINER SIGNATURE

Examiner Signature	/Allahyar Kasraian/	Date Considered	06/17/2013

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013					
	1	✓	✓	✓	✓					
	2	✓	✓	✓	✓					
	3	✓	✓	✓	✓					
	4	✓	✓	✓	✓					
	5	✓	✓	✓	✓					
	6	✓	✓	✓	✓					
	7	✓	✓	✓	✓					
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	Examiner	Art Unit
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013					
	37	-	-	-	-					
	38	✓	✓	✓	✓					

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	23	(MSC RNC) with independent with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:39
L3	21	(MSC RNC) with shar$3 with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:43
L4	11	(MSC RNC) with operat$3 with (different several two)near3 (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:45
S1	1	13/240776	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/19 16:05
S2	2	"20020147008".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 12:01
S3	3	("6909705", "20040229618", "6515983").pn.	US-PGPUB; USPAT	OR	ON	2012/10/21 12:31
S4	66	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (wlan (wirelss near2 LAN) wifi) with (hand$2off hand$2over (hand$3 adj2 (over off))) with (cellular gsm cdma umts) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S5	13	S4 and ((signal near2 strength) ssi rssi) with threshold	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S6	3	10/688608	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT;	OR	ON	2012/10/25 17:09

			IBM_TDB			
S11	4	"roaming between wi-fi network" and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 23:38
S12	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (status condition) with (remov$3 delet$3) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 13:58
S13	71	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:20
S14	10	S13 and (access near2 point) with ip near2 address	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:22
S15	66	(370/338,331-334.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:55
S16	68	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 15:55
S17	27	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (mov$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:01
S18	17	(370/338,331-334.ccls.) and (first origina$5 old) near2 (access near2 point) with (ip near2 address) and (second target new) near2 (access near2 point) with (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:52
S19	25	("370"/$.ccls. "455"/$.ccls.) and (first origina$5 old) near2 (access near2 point) near8 (ip near2 address) and (second target new) near2 (access near2 point) near8 (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 17:06

S20	70	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:32
S21	28	S20 and called near2 (device terminal phone telephone party)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:35
S22	2	"20040214574".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:46
S23	42	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:51
S24	12	(455/445.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 11:59
S25	1	09/783818	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 13:13
S26	28	(455/445.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 14:49
S27	3	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:23
S28	8	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:24
S29	9	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT;	OR	ON	2012/10/27 16:25

			IBM_TDB			
S30	1	13/139637	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:48
S31	191	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (destination end$2device end$2user) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/02 23:02
S32	39	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (receiving) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/03 00:20
S33	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$2hoc with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:18
S34	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with ad$2hoc same connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:21
S35	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with (peer adj4 peer) and connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:22
S36	5	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with bluetooth with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:24
S37	13	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (receiving destination) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:38
S38	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (terminat$5 end) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:42
S39	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with	US-PGPUB; USPAT; USOCR;	OR	ON	2013/02/04 17:46

		cellular and (ad$2hoc (peer adj4 peer)) with connection and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S40	99	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:50
S41	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular same (ad$2hoc (peer adj3 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:51
S42	16	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$hoc and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:23
S43	0	(370/310-350.ccls. "455"/$.ccls.) and re$direct$4 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:34
S44	16	(370/310-350.ccls. "455"/$.ccls.) and rout$3 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:35
S45	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S46	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (bluetooth) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S47	3	"20050070288"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:58
S48	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:06

S49	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (connect$4 establish$3) with (new second$2) near2 (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:08
S50	39	(455/41.1-41.3.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:20
S51	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:19
S52	23	("370"/$.ccls. "455"/$.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:21
S53	60	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and msc with connect$3 with (several mutiple plurality) near6 bsc and bsc with connect$3 with (bts (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 16:55
S54	11	("370"/$.ccls. "455"/$.ccls.) and (rnc bsc) with indirect$3 with connect$3 with (bs$2 (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 17:29
S55	2	"20030012350".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 10:35

EAST Search History (Interference)

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6/17/2013 5:38:34 PM
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHAYAR KASRAIAN	2642

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
Text search.	See search history.	2/29/2012	HN
370	338, 331	10/27/2012	AK
455	436, 439, 445	10/27/2012	AK

SEARCH NOTES		
Search Notes	Date	Examiner
East. Text search.	2/29/2012	HN
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached seach strategy)	10/27/2012	AK
Inventor name and Assignee search in PALM ExPo and EAST	10/27/2012	AK
(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.)	10/27/2012	AK
EPO Data base: http://worldwide.espacenet.com/	10/27/2012	AK
Updated search	2/6/2013	AK
Updated search	6/17/2013	AK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642

PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2642
Vasudevan Ganesan	Examiner: Kasraian, Allahyar
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED June 27, 2013**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
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Alexandria, VA 22313-1450

AMENDMENT

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:

establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network;

monitoring a signal strength of the first wireless communication link;

when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device without disrupting the first communication link;

notifying the mobile communication device to terminate transmission over the first communication link; and

re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network.

2. (previously presented) The method of claim 1 wherein the first type of wireless communication link comprises a IEEE 802.11 standard based communication link, and the first type of wireless network includes a IEEE 802.11 standard based network access point.

3. (original) The method of claim 2 wherein the second type of wireless network includes a wireless cellular network.

4. (previously presented) The method of claim 1 wherein establishing the first communication link includes routing through a voice over internet protocol network.

5. (original) The method of claim 1 wherein establishing the first communication link includes routing through a cellular network.

6. (previously presented) The method of claim 1 wherein establishing the second communication link includes routing through a voice over internet protocol network.

7. (original) The method of claim 1 wherein establishing the second communication link includes routing through a cellular network.

8. (original) The method of claim 1 further comprising providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network.

9. (original) The method of claim 8 further comprising providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server.

10. (original) The method of claim 9 further comprising routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the first type of wireless network.

11. (previously presented) The method of claim 10 further comprising when the connectivity status is not provided to the interface server, the routing association is removed from the mobile switching center.

12. (original) The method of claim 1 further comprising registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold.

13. (original) The method of claim 12 further comprising setting up the second communication link with the end destination device and forwarding the second communication link to the interface server.

14. (currently amended) A method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas, the method comprising:

associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points;

establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point;

registering the mobile communication device with the nomadic server including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server;

configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first IEEE 802.11 standard based access point and the first IEEE 802.11 standard based communication link;

detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point;

registering the mobile communication device with the nomadic server including an IP address of the second IEEE 802.11 standard based access point;

establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point; and

re-configuring the communication path according to the IP address of the second IEEE 802.11 standard based access point and the second IEEE 802.11 standard based communication link;

wherein the mobile communication device always attempts to notify ~~notifies~~ the nomadic server if the first communication link falls below a threshold.

15. (previously presented) The method of claim 14 further comprising associating the mobile communication device to the nomadic server at a mobile switching center.

16. (original) The method of claim 14 further comprising providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

17. (previously presented) The method of claim 16 further comprising routing a communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the communication from the interface server to the mobile communication device over the communication path.

18. (original) The method of claim 14 wherein registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific WiFi access point.

Claims 19-37 (canceled).

38. (currently amended) A method of providing communications between mobile communication devices, the method comprising:

routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device;

routing the communication over a second communication link between the first cellular base station and a first controller device;

routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises an Internet Protocol network;

routing the communication over a fourth communication link between the second controller device and a second cellular base station; and

routing the communication over a fifth communication link between the second cellular base station and the second communication device;

wherein the first mobile communication device notifies an interface server if the first communication link falls below a threshold and further wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks ~~the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station~~.

REMARKS

The Applicant respectfully requests further examination and consideration of the claims in view of the above amendments and the arguments set forth fully below. Claims 1-18 and 38 were pending in this application. Within the Office Action, Claims 1-10, 12-18 and 38 have been rejected and Claim 11 has been objected to. By the above amendments, Claims 1, 14 and 38 have been amended. Accordingly, Claims 1-18 and 38 are now pending.

Support for Amendments

By the above amendments, Claim 38 has been amended to recite "wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks." Support for this amendment is found within the Present Specification at least at page 21, lines 7-13. Claim 1 has been amended to recite "without disrupting the first communication link," which is supported throughout the Present Specification including the original claims which describe the creation of the second link without any disruption of the first link such that it must be subsequently terminated. Claim 14 has been amended to recite "always attempts to notify," which is also supported throughout the Present Specification and the original claims which describe notifying if the signal is less than the threshold. Accordingly, no new matter has been added.

Rejections Under 35 U.S.C. § 112

Within the Office Action, Claim 38 has been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, it is asserted that the phrase "wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station" contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor had possession of the invention at the time the application was filed. The Applicants respectfully disagree. Nonetheless in order to further prosecution, the above limitation has been removed from Claim 38. Accordingly, the rejection should be withdrawn.

Response to Arguments

Within the Office Action, it is reasserted that Belkin teaches establishing a **second** communication link between the interface server and the **end destination device**. Specifically, it appears to be explained that it is interpreted that Belkin teaches the limitation by its rerouting of the voice bearer RTP of the asserted end destination device 714 to the asserted interface server 710. In other words, the link 1002 thereby formed between the peer CU 714 and the network switching function 740 is the claimed second communication link between the end destination device and interface server. [Office Action, pages 19-21] The Applicants respectfully disagree.

Specifically, because this asserted second link 1002 is actually just a rerouting of the first link 120, it is not a separate or second link, as claimed. Indeed, in order to emphasize this difference the Claims have been amended to recite "establishing a second communication link between the interface server and the end destination device without disrupting the first communication link." Neither Ibe nor Belkin teach to form such a second link while a first link between the mobile devices is not disrupted. Instead, Ibe does not teach forming a second link at all and Belkin disrupts the first link in order to create its "second link." Thus, the combination of Ibe and Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device** without disrupting the first communication link.

Within the Office Action regarding Claim 14, it is asserted that 10 "there is nothing in the claim to disclose '*always notify the server if the link falls below a threshold*,'" 2) "it seems that Applicant admits that Rue discloses the mobile device of Rue on 12 'notifies' the server [when] the link falls below the threshold (and a new access point is found), and 3) because Claim 14 further recites detecting movement of the mobile device into the coverage area of a second access point, "the purpose of notifying a server when a mobile device detects the communication link is weak (or below a threshold value) is to hand off the mobile device to another base station or access point" such that the Rue has the same functionality. [Office Action, page 24] The Applicants respectfully disagree.

First, by the above amendments Claim 14 has been amended to recite "wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold." Thus, there is no longer anything in the claim to disclose always notifying the server, and this always attempting is in contrast with Rue that does not attempt if no second access point is found. Second, Applicants do not admit that Rue notifies

the server when the link falls below the threshold (and a new access point is found) as the argument was premised with the disclaimer "even if Rue did teach the use of a threshold." Third, even if the presently claimed invention and Rue had the same "purpose" in their server notification, it would not change the fact that Rue does not "notify" anything unless a second access point is found (even if signal weakness is detected), whereas the presently claimed invention always attempts to notify the nomadic server if the first communication link falls below a threshold. Thus, Rue does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 1-10, 12 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 8,041,360 to Ibe et al. (hereinafter "Ibe") in view of U.S. Patent No. 7,398,088 to Belkin et al. (hereinafter "Belkin"). The Applicant respectfully disagrees.

Ibe is directed to a method of seamless roaming between wireless local area networks and cellular carrier networks. Specifically, Ibe teaches enabling a user that originates a call in a WLAN and happens to go outside the range of the WLAN to automatically switch over to the cellular carrier network. [Ibe, Abstract] However, as recognized within the Office action, Ibe does not teach establishing a **second** communication link between the interface server and the **end destination device** without disrupting the first communication link. Instead, Ibe merely teaches that a second link is made between the cellular proxy (i.e. asserted interface server) and the mobile device, not between the cellular proxy and the end destination device.

Belkin is directed to a handover method and apparatus. Specifically, Belkin teaches obtaining call information corresponding to an ongoing call over a first network and ascertaining a handover number for use by one of the wireless communication units to originate a handover call via a second network, wherein the handover number terminates in the first network for use in facilitating the handover of the communication to the second network. [Belkin, Abstract] However, Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device** without disrupting the first communication link. Instead, Belkin merely teaches establishing a second connection 302 between the mobile communication device 102 and the network switching function 710 (asserted interface server), not between the end destination device 714 and the network switching function 710.

Within the Office Action, it is asserted that the above limitation is taught in Belkin at col. 13, lines 32-44 by "when a handover situation becomes imminent ..., the wireless communication unit 102 initiates a handover call ... the handover call is routed via the network switching function 112 to the network switching function 710." [Office Action, page 6] However, as described above, this citation merely indicates a second link is established between the asserted interface server and the mobile communication device, not the interface server and the end destination device (i.e. peer CU 714). It is also asserted within the Office Action that the above limitation is taught in Belkin at col. 13, line 45 to col. 14, line 2 by "the message requests that the peer unit 713 route it's voice bearer RTP to the RTP port associated with the handover call, e.g. WAN leg or UA4 836 of the network switching function 710 and the RTP will be rerouted as a result of the message being forwarded to UA1 730." [Office Action, page 6] However, all that the above citation teaches is that the **single** connection between the peer CU 714 and the network switching function 710 is **rerouted** to the handover call port, not that a **second** connection is made between the peer CU 714 and the network switching function 710. Rerouting a connection is not the same as establishing a second connection. As a result, Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device** without disrupting the first communication link.

Thus, because neither Ibe nor Belkin teach establishing a **second** communication link between the interface server and the **end destination device** without disrupting the first communication link, nor can their combination. Accordingly, the combination of Ibe and Belkin does not teach the presently claimed invention.

In contrast to the teachings of the combination of Ibe and Belkin, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WiFi and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WiFi and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WiFi hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of Ibe and Belkin

does not teach establishing a **second** communication link between the interface server and the **end destination device** without disrupting the first communication link.

The independent Claim 1 is directed to a method of providing communications for a mobile communication device that roams between multiple different types of wireless networks. The method comprises establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network, monitoring a signal strength of the first wireless communication link, when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device without disrupting the first communication link, notifying the mobile communication device to terminate transmission over the first communication link and re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network. As described above, the combination of Ibe and Belkin does not teach establishing a **second** communication link between the interface server and the **end destination device** without disrupting the first communication link. For at least these reasons, the independent Claim 1 is allowable over Ibe, Belkin and their combination.

Claims 2-10, 12 and 13 are dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the combination of Ibe and Belkin. Accordingly, Claims 2-10, 12 and 13 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 14 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2003/0185172 to Rue et al. (hereinafter "Rue") in view of U.S. Patent Pub. No. 2004/0114559 to Wang et al. (hereinafter "Wang"). The Applicants respectfully disagree.

Rue is directed to an apparatus and method for supporting mobility between subnetworks of mobile nodes in a wireless LAN. [Rue, Abstract] However, Rue does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold. Instead, Rue teaches nothing about a first

communication link threshold, much less the mobile device notifying the nomadic server if the link falls below a threshold.

Within the Office Action, it is asserted that this limitation is taught in Rue at paragraph 0030 by "the mobile node 101 concludes that the signal intensity of the first access point has weakened," the reassociation_req S209 and the handover_req S211. [Office Action, page 12] The Applicants respectfully disagree. "Concluding that a signal intensity has weakened" is not the same as determining if a signal has fallen below a threshold. Indeed, signals strengthen and weaken constantly due to numerous factors without ever crossing defined thresholds. Thus, even if Rue teaches concluding a signal has weakened, it still fails to teach the claimed "threshold" determination.

Additionally, even if Rue did teach the use of a threshold, it would still fail to teach the claimed limitation because it does not teach that the mobile node 101 notifies the mobile access server 104 (i.e. the asserted nomadic server) if the signal weakens. Instead, Rue teaches that the mobile node simply "scans another new access point until it acquires a signal of the second access point 103." Scanning for an access point is not the same as notifying the mobile access server 104. For example, if the mobile node 101 is not able to find a new access point during its scan, there is nothing in Rue that teaches that the mobile access server 104 will ever be notified of the weakened signal detection.

Within the Office Action, it is asserted that the transmission of the handover request message to the mobile access server after the mobile node transmits a reassociation request message to the second access point teaches the above limitation because it provides the same functionality as the claimed limitation. [Office Action, page 22] The Applicants respectfully disagree because the process of Rue does not provide the same functionality as the claimed notification process. The claimed limitation recites "wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold." In other words, the notification is conditioned on the link falling below the threshold. In contrast, the "notification" or handoff request of Rue is conditioned on the mobile node finding a new access point. These different conditions result in different functioning by the mobile nodes. The presently claimed invention will always notify the server if the link falls below the threshold, whereas the mobile device of Rue only "notifies" the server if **both** the link falls below the threshold **and** a new access point is found. Thus, as described above, if no new node is found the presently claimed mobile device will still notify the server whereas the mobile

device of Rue will not. That is not the same functionality. Thus, Rue does teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

Additionally, as recognized within the Office Action, Rue does not teach providing an IP address of the first and second WIFI access points to the nomadic server.

Wang is directed to inter-proxy communication protocol for mobile IP. Specifically, Wang teaches a first access point sends an inter-proxy request message to one or more additional access points that requests the IP configuration information for the node. [Wang, Abstract] However, Wang does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

As described above, Rue and Wang both fail to teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold. As a result, the combination of Rue and Wang does not teach the presently claimed invention.

In contrast to the teachings of Rue and Wang, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WIFI and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WIFI and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WIFI hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of Rue and Wang does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

The independent Claim 14 is directed to a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas. The method comprises associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points, establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server, configuring a

communication path to the mobile communication device via the nomadic server according to the IP address of the first IEEE 802.11 standard based access point and the first IEEE 802.11 standard based communication link, detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including an IP address of the second IEEE 802.11 standard based access point, establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point and re-configuring the communication path according to the IP address of the second IEEE 802.11 standard based access point and the second IEEE 802.11 standard based communication link, wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold. As described above, the combination of Rue and Wang does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold. For at least these reasons, the independent Claim 14 is allowable over Rue, Wang and their combination.

Claim 18 is dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang and their combination. Accordingly, Claim 18 is also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 15-17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Rue and Wang in view of U.S. Patent Pub. No. 2002/0147008 to Kallio et al. (hereinafter "Kallio"). The Applicants respectfully disagree.

Claims 15-17 are dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang and their combination. Accordingly, Claims 15-17 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claim 38 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2004/0203802 to McCormick et al. (hereinafter "McCormick") in view of Ibe and further in view of U.S. Patent No. 6,195,543 to Granberg et al. (hereinafter "Granberg"). The Applicants respectfully disagree.

McCormick is directed to a process for optimizing speech coding as a function of end user device characteristics. [McCormick, Abstract] However, McCormick does not teach the first and fifth communication links are over cellular networks and the second, third and fourth

communication links are over non-cellular networks. Instead, the second and fourth communication links of McCormick are over the cellular networks 131 and 141 between the base stations 133, 144 and the RNCs 132, 142 (i.e. asserted controller devices) as shown in Figure 1. Thus, McCormick does not teach the presently claimed invention.

As described above, Ibe is directed to a method of seamless roaming between wireless local area networks and cellular carrier networks. However, Ibe does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. Instead, Ibe is only cited for the purpose of teaching the mobile communication device notifying an interface server if the first communication link falls below a threshold. Accordingly, Ibe does not teach the presently claimed invention.

Granberg is directed to a control point administers an Advice of Charge (AoC) service provided to mobile subscribers. Specifically, Granberg teaches that the control point determines one or more AoC parameters for the call and sends them to a switching node currently serving the mobile station, wherein the mobile station receives the AoC parameters from the serving switching node and determines a prospective cost associated with the call and displays that cost to the mobile subscriber. [Granberg, Abstract] However, Granberg does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. Instead, Granberg is only cited for the purpose of teaching wherein the first controller device and the second controller device are able to operate independent of a first cellular network including the first cellular base station and a second cellular network including the second cellular base station. Accordingly, Granberg does not teach the presently claimed invention.

As described above, McCormick, Ibe and Granberg all fail to teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks As a result, the combination of McCormick, Ibe and Granberg does not teach the presently claimed invention.

In contrast to the teachings of McCormick, Ibe and Granberg, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WIFI and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WIFI and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching

the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WIFI hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of McCormick, Ibe and Granberg does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks.

The independent Claim 38 is directed to a method of providing communications between mobile communication devices. The method comprises routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device, routing the communication over a second communication link between the first cellular base station and a first controller device, routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network, routing the communication over a fourth communication link between the second controller device and a second cellular base station and routing the communication over a fifth communication link between the second cellular base station and the second communication device, wherein the first mobile communication device notifies an interface server if the first communication link falls below a threshold and further wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. As described above, the combination of McCormick, Ibe and Granberg does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. For at least these reasons, the independent Claim 38 is allowable over McCormick, Ibe, Granberg and their combination.

Allowable Subject Matter

Within the Office Action, it is asserted that Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to be independent including any intervening claims. Claim 11 is dependent upon the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the combination of Ibe and Belkin. Accordingly, Claim 11 is also allowable as being dependent on an allowable base claim.

CONCLUSION

Applicant respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: August 23, 2013

By: /Jonathan O. Owens/
Jonathan O. Owens
Reg. No.: 37,902
Attorneys for Applicants

Electronic Acknowledgement Receipt

EFS ID:	16670447
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
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Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response_8_23_2013.pdf	78175 df4cafef47999200ac8edaa82505c232b127a62a	yes	17

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	6
	Applicant Arguments/Remarks Made in an Amendment	7	17
Warnings:			
Information:			
	Total Files Size (in bytes):	78175	

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/240,776	Filing Date 09/22/2011	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	08/23/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/Davina Butler/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

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EXAMINER	
KASRAIAN, ALLAHYAR	
ART UNIT	**PAPER NUMBER**
2642	
MAIL DATE	**DELIVERY MODE**
09/04/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 13/240,776	**Applicant(s)** GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	**Art Unit** 2642	**AIA (First Inventor to File) Status** No

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 23 August 2013 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT'S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: *See Continuation Sheet*. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): (a) ☐ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed: .
    Claim(s) objected to: .
    Claim(s) rejected: .
    Claim(s) withdrawn from consideration: .

/Allahyar Kasraian/
Primary Examiner, Art Unit 2642

Continuation of 3. NOTE:
The newly-amended claims 1, 14 and 38 raise new issues which require further search and consideration.

IPR2025-00447 Page 00598

DO NOT ENTER: /A.K./

PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2642
Vasudevan Ganesan	Examiner: Kasraian, Allahyar
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED June 27, 2013**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
	Customer No. 28960

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

DO NOT ENTER: /A.K./

08/28/2013

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (08/08)
Approved for use through 09/30/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	13240776	Filing Date	2011-09-22	Docket Number (if applicable)	HAVA-00401	Art Unit	2642
First Named Inventor	Vasudevan Ganesan			Examiner Name	Kasraian, Allahyar		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☒ Other Please enter the Amendment and Response previously filed on August 23, 2013.

☐ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 081275

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (08/08)
Approved for use through 09/30/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2013-09-17
Name	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	13240776
Filing Date:	22-Sep-2011
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Filer:	Jonathan O Owens
Attorney Docket Number:	HAVA-00401
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
		Total in USD ($)		**600**

Electronic Acknowledgement Receipt	
EFS ID:	16881080
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	17-SEP-2013
Filing Date:	22-SEP-2011
Time Stamp:	19:06:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$600
RAM confirmation Number	6176
Deposit Account	081275
Authorized User	OWENS, JONATHAN O.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	RCE_form_SB_30e_9_17_2013.pdf	699945 76074c32fd3fd248830569f1cb16e7e597b62c6e	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30401 e97db8f87842571cbd303a9bae2adc2b1e806fcc	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	730346		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

28960 7590 11/15/2013

HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

EXAMINER	
KASRAIAN, ALLAHYAR	
ART UNIT	PAPER NUMBER
2642	
MAIL DATE	DELIVERY MODE
11/15/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/240,776	Applicant(s) GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/17/2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-18 and 38* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☒ Claim(s) *1-13* is/are allowed.

7)☒ Claim(s) *14-18 and 38* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 17, 2013 has been entered.

Remarks

3. The present Office Action is based upon the Applicant's amendment filed on August 23, 2013. **Claims 1-18 and 38** are now pending in the present application.

Claim Rejections - 35 USC § 103

4. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

A. **Claims 14 and 18** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Rue (US Patent Application Publication # 20030185172 A1)** in view of **Wang (US Patent Application Publication # 20040114559 A1)** and further in view of **Muszynski (US Patent # 6009328)**.

Consider **claim 14**, Rue discloses a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas (FIGS. 1 and 3, par. [0010] for a mobile node moving between the WLAN areas), the method comprising:

associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points (FIG. 2, par. [0029] and [0030] for MAS 104 receiving access request from mobile node 101);

establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point

(par. [0029] for *performing communication* through the first access point 102 after receiving Access_Res and Association_Res);

registering the mobile communication device with the nomadic server [including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server] (par. [0029] for MAS confirming the location move based on received Assocaion_Req and Access_Req);

configuring a communication path to the mobile communication device via the nomadic server according to [the IP address of the first IEEE 802.11 standard based access point and] the first IEEE 802.11 standard based communication link (par. [0029] for MAS confirming the location move based on received Assocaion_Req, Access_Req, Access_Res and Association_Res; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened);

registering the mobile communication device with the nomadic server [including an IP address of the second IEEE 802.11 standard based access point] (par. [0030] for sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed);

establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point (par. [0030] for the mobile node 101 can *perform communication* through the second access point 103); and

re-configuring the communication path according to [the IP address of the second IEEE 802.11 standard based access point and] the second IEEE 802.11 standard based communication link (par. [0030] for the mobile node 101 can perform communication through the second access point 103; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold (par. [0030] for the mobile node 101 concludes that the signal intensity of the first access point has been weakened and notifying MAS 104 by sending Reassociation_Req and Handover_Req).

However, Rue may fail to explicitly disclose providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server.

In the same field of endeavor, Wang discloses providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server (FIGS. 2, 4 and 5, par. [0044] and [0045] for an IP address of the sending access point (e.g. claimed second

access point) and the IP address of the target access point (e.g. the first access point) with consideration of FA, HA or DHCP as the claimed nomadic server).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the IP addresses of access points as taught by Wang to registration with an access point (when a mobile station moves the coverage area of one access point to a new access point) as disclosed by Rue for purpose of including the IP addresses of the access points during the accessing or registration process.

However, Rue as modified by Wang fails to explicitly disclose wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

In the same field of endeavor, Muszynski discloses wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold (FIG. 1, col. 10 lines 6-8 for MS 30 will inform MSC 14 (considered as claimed nomadic server or to include the nomadic server) via a pilot signal quality measurement report that the signal coming from BS 24 has weakened below a predetermined threshold).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate informing a controller when a mobile station determines a received signal coming from a serving base station has weakened below a predetermined threshold as taught by Muszynski to the system including a mobile node which concludes that the signal intensity of an access point has been

weakened as disclosed by Rue as modified by Wang for purpose of informing the controller about the received signal quality received from a serving base station when the signal quality is below a predetermined threshold.

Consider **claim 18**, Rue as modified by Wang as modified by Muszynski discloses the claimed invention **as applied to claim 14 above**, and Rue further discloses wherein registering the mobile communication device with the nomadic server provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened, and sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed).

B. **Claims 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rue** in view of **Wang** in view of **Muszynski** and further in view of **Kallio (US Patent Application Publication # 20020147008 A1)**.

Consider **claim 15 as applied to claim 14 above**, Rue as modified by Wang as modified by Muszynski discloses the claimed invention except disclosing associating the mobile communication device to the nomadic server at the mobile switching center.

In the same field of endeavor, Kallio discloses associating the mobile communication device to the nomadic server at the mobile switching center (FIG. 1, par.

[0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang as modified by Muszynski for purpose of updating location of the mobile device at the MSC.

Consider **claim 16 as applied to claim 14 above**, Rue as modified by Wang as modified by Muszynski discloses the claimed invention except providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

In the same field of endeavor, Kallio discloses providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang as modified by Muszynski for purpose of updating location of the mobile device at the MSC.

Consider **claim 17 as applied to claim 16 above**, Kallio further discloses routing a communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the communication from the interface server to the mobile communication device over the communication path (it is inherently taught and well-known that an end communication device can communicate a call to the mobile device in WLAN network, where the call is routed through MSC to WMC and finally to the mobile station).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang as modified by Muszynski for purpose of updating location of the mobile device at the MSC.

C. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over **McCormick et al. (US Patent Application Publication # 20040203802 A1)** (hereinafter McCormick) in view of **Ibe** and further in view of **Scheinert et al. (US Patent Application Publication # 20040204097 A1)** (hereinafter Scheinert).

Consider **claim 38**, McCormick discloses a method of providing communications between mobile communication devices (FIGS. 1 and 2, par. [0018] and [0019] for call process between calling party 101 and calling party 101'), the method comprising:

routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101');

routing the communication over a second communication link between the first cellular base station and a first controller device (FIGS. 1 and 2, par. [0019] for the call route or connection between the base station 133 and RNC 132);

routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208 inserting a parameter into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142);

routing the communication over a fourth communication link between the second controller device and a second cellular base station (FIGS. 1 and 2, par. [0014], [0019] and [0020] for the link between RNC 142 and base station 144); and

routing the communication over a fifth communication link between the second cellular base station and the second communication device (FIGS. 1 and 2, par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101').

McCormick further discloses the first communication link falls below a threshold (FIG. 1, par. [0015] and [0016] for the radio unit in the wireless subscriber device 101 re-tunes the transmitter-receiver equipment contained therein to use these designated radio frequencies and orthogonal coding. Once the communication connection is established, the control messages are typically transmitted to adjust transmitter power and change the transmission channel when required to handoff this wireless subscriber device 101 to an adjacent cell, when the subscriber moves from the present cell to one of the adjoining cells (i.e. the radio link 111 falls below a threshold)).

However, McCormick may fail to explicitly disclose wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold.

In the same field of endeavor, Ibe discloses the mobile communication device notifies an interface server if the first communication link falls below a threshold (col. 3 lines 32-54 for when a mobile device moves closer to the edge of a cell (of a network), it monitors SNR. If the SNR drops to a threshold d, then the mobile device sends Handoff

request message to a Cellular Proxy (claimed interface server) connected to cellular network).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate sending a Handoff Request message to a Cellular Proxy when a mobile device moves and determines the SNR drops to a threshold level as taught by Ibe to the method of call routing when a device is handing off from one base station to an adjacent base station as disclosed by McCormick for purpose of requesting a handoff to an device for managing handoff and routing the calls.

Although McCormick discloses the first and fifth communication links are over cellular networks (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101', par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101'), and

the third communication link is over non-cellular networks (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208 inserting a parameter into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142), McCormick as modified by Ibe fails to disclose wherein the second and fourth communication links are over non-cellular networks.

In the same field of endeavor, Scheinert discloses wherein the second and fourth communication links are over non-cellular networks (FIG. 5, par. 0028 for Internet based

network 40 with Internet connection 42 for connecting of Internet base station IBS 42 with IBSC 48, and par. 0029 for IBS 42 communicate with one or more mobile stations 24 over a standard air interface, and replacing the conventional; thus the second and fourth links are non-cellular network when the calling party 101 and calling party 101' are located in the same or different Internet based network 40).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate Internet based network Internet base stations connected via Internet links to Internet base station controllers as taught by Scheinert to the cellular communication network as disclosed by McCormick as modified by Ibe for purpose of conveying wireless traffic between a mobile station and a conventional wireless network via the Internet.

Allowable Subject Matter

5. **Claims 1-13** are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

Independent **claim 1**, are allowable in view of Applicant's amendments and arguments as filed on 08/23/2013.

Therefore, **claims 1-13** are considered novel and non-obvious and are therefore allowed.

Response to Arguments

7. Applicant's arguments with respect to **claims 14-18 and 38** have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allahyar Kasraian/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 13/240,776	Applicant(s)/Patent Under Reexamination GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,009,328	12-1999	Muszynski, Peter	455/442
*	B	US-2004/0204097 A1	10-2004	Scheinert et al.	455/561
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHAYAR KASRAIAN	2642

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
Text search.	See search history.	2/29/2012	HN
370	338, 331	10/27/2012	AK
455	436, 439, 445	10/27/2012	AK

SEARCH NOTES		
Search Notes	Date	Examiner
East. Text search.	2/29/2012	HN
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached seach strategy)	10/27/2012	AK
Inventor name and Assignee search in PALM ExPo and EAST	10/27/2012	AK
(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.)	10/27/2012	AK
EPO Data base: http://worldwide.espacenet.com/	10/27/2012	AK
Updated search	2/6/2013	AK
Updated search	6/17/2013	AK
Updated search	11/14/2013	AK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013	11/14/2013	11/14/2013			
	1	✓	✓	✓	✓	=				
	2	✓	✓	✓	✓	=				
	3	✓	✓	✓	✓	=				
	4	✓	✓	✓	✓	=				
	5	✓	✓	✓	✓	=				
	6	✓	✓	✓	✓	=				
	7	✓	✓	✓	✓	=				
	8	✓	✓	✓	✓	=				
	9	✓	✓	✓	✓	=				
	10	✓	✓	✓	✓	=				
	11	✓	✓	O	O	=				
	12	✓	✓	✓	✓	=				
	13	✓	✓	✓	✓	=				
	14	✓	✓	✓	✓	✓				
	15	✓	✓	✓	✓	✓				
	16	✓	✓	✓	✓	✓				
	17	✓	✓	✓	✓	✓				
	18	✓	✓	✓	✓	✓				
	19	-	-	-	-	-				
	20	-	-	-	-	-				
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	22	-	-	-	-	-				
	23	-	-	-	-	-				
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	31	-	-	-	-	-				
	32	-	-	-	-	-				
	33	-	-	-	-	-				
	34	-	-	-	-	-				
	35	-	-	-	-	-				
	36	-	-	-	-	-				

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013	11/14/2013	11/14/2013			
	37	-	-	-	-	-				
	38	✓	✓	✓	✓	✓				

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(455/445.ccls.) and (IP internet) near2 (link path) with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:12
L2	3	("370"/$.ccls.) and (IP internet) near2 (link path) with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:13
L3	10	("370"/$.ccls.) and (IP internet) near2 (link path) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:19
L4	9	("455"/$.ccls.) and (IP internet) near2 (link path) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:22
S1	1	13/240776	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/19 16:05
S2	2	"20020147008".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 12:01
S3	3	("6909705", "20040229618", "6515983").pn.	US-PGPUB; USPAT	OR	ON	2012/10/21 12:31
S4	66	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (wlan (wirelss near2 LAN) wifi) with (hand$2off hand$2over (hand$3 adj2 (over off))) with (cellular gsm cdma umts) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S5	13	S4 and ((signal near2 strength) ssi rssi) with threshold	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58

S6	3	10/688608	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 17:09
S11	4	"roaming between wi-fi network" and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 23:38
S12	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (status condition) with (remov$3 delet$3) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 13:58
S13	71	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:20
S14	10	S13 and (access near2 point) with ip near2 address	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:22
S15	66	(370/338,331-334.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:55
S16	68	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 15:55
S17	27	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (mov$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:01
S18	17	(370/338,331-334.ccls.) and (first origina$5 old) near2 (access near2 point) with (ip near2 address) and (second target new) near2 (access near2 point) with (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:52
S19	25	("370"/$.ccls. "455"/$.ccls.) and (first origina$5 old) near2 (access near2 point) near8 (ip near2 address) and (second target new) near2 (access near2 point) near8 (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 17:06

S20	70	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:32
S21	28	S20 and called near2 (device terminal phone telephone party)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:35
S22	2	"20040214574".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:46
S23	42	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:51
S24	12	(455/445.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 11:59
S25	1	09/783818	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 13:13
S26	28	(455/445.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 14:49
S27	3	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:23
S28	8	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:24
S29	9	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:25

S30	1	13/139637	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:48
S31	191	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (destination end$2device end$2user) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/02 23:02
S32	39	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (receiving) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/03 00:20
S33	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$2hoc with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:18
S34	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with ad$2hoc same connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:21
S35	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with (peer adj4 peer) and connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:22
S36	5	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with bluetooth with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:24
S37	13	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (receiving destination) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:38
S38	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (terminat$5 end) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:42
S39	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:46

S40	99	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:50
S41	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular same (ad$2hoc (peer adj3 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:51
S42	16	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$hoc and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:23
S43	0	(370/310-350.ccls. "455"/$.ccls.) and re$direct$4 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:34
S44	16	(370/310-350.ccls. "455"/$.ccls.) and rout$3 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:35
S45	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S46	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (bluetooth) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S47	3	"20050070288"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:58
S48	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:06
S49	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (connect$4 establish$3) with (new second$2) near2 (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:08

S50	39	(455/41.1-41.3.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:20
S51	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:19
S52	23	("370"/$.ccls. "455"/$.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:21
S53	60	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and msc with connect$3 with (several mutiple plurality) near6 bsc and bsc with connect$3 with (bts (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 16:55
S54	11	("370"/$.ccls. "455"/$.ccls.) and (rnc bsc) with indirect$3 with connect$3 with (bs$2 (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 17:29
S55	2	"20030012350".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 10:35
S56	23	(MSC RNC) with independent with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:39
S57	21	(MSC RNC) with shar$3 with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:43
S58	11	(MSC RNC) with operat$3 with (different several two)near3 (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:45
S59	1	"8078164"	USPAT	OR	ON	2013/11/12 04:53
S60	54	seam$2less near3 (hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with cellular and (link leg path) with	US-PGPUB; USPAT; USOCR;	OR	ON	2013/11/13 02:43

		(wlan (wireless near2 lan)) and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S61	808	seam$2less with (hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with (destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:43
S62	26	S60 not Gallagher.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:47
S63	9	S62 and (link leg path) with (target destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:48
S64	16	(hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with cellular and (link leg path) with (wifi "ieee 802.11" "802.11" wlan (wireless near2 lan)) same (link leg path) with (target destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:55
S65	1	("455"/$.ccls. "370"/$.ccls.) and notif$7 near3 (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 12:30
S66	122	("455"/$.ccls. "370"/$.ccls.) and (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 12:56
S67	6	("455"/$.ccls. "370"/$.ccls.) and report$3 near3 (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 14:00
S68	15	(455/445.ccls.) and (IP internet) near2 network with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 18:35
S69	126	("455"/$.ccls. "370"/$.ccls.) and (report$3 notif$7) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 09:31

S70	16	("455"/$.ccls. "370"/$.ccls.) and (report$3 notif$7) near7 (server RNC MSC controller controling) with (below less) near5 threshold with (quality SNR SNIR strength) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 09:33

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	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Allahyar Kasraian
	Attorney Docket Number	HAVA-00401

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	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Allahyar Kasraian
	Attorney Docket Number	HAVA-00401

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13240776
	Filing Date	2011-09-22
	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Allahyar Kasraian
	Attorney Docket Number	HAVA-00401

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

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☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2013-12-09
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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EFS ID:	17609246
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	09-DEC-2013
Filing Date:	22-SEP-2011
Time Stamp:	18:54:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_12_09_2013.pdf	612641 0cd86a0ac2939bb3fc998407b69d9680c5c5f35a	no	4

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PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2642
Vasudevan Ganesan	Examiner: Kasraian, Allahyar
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED November 15, 2013**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
	Customer No. 28960

Mail Stop Amendment
Commissioner for Patents
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Alexandria, VA 22313-1450

AMENDMENT

Remarks/Arguments begin on page 2 of this paper.

REMARKS

The Applicant respectfully requests further examination and consideration of the claims in view of the above amendments and the arguments set forth fully below. Claims 1-18 and 38 were pending in this application. Within the Office Action, Claims 14-18 and 38 have been rejected and Claims 1-13 have been allowed. Accordingly, Claims 1-18 and 38 are now pending.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 14 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2003/0185172 to Rue et al. (hereinafter "Rue") in view of U.S. Patent Pub. No. 2004/0114559 to Wang et al. (hereinafter "Wang") and further in view of U.S. Patent No. 6,009,328 to Muszynski (hereinafter "Muszynski"). The Applicants respectfully disagree.

Rue is directed to an apparatus and method for supporting mobility between subnetworks of mobile nodes in a wireless LAN. [Rue, Abstract] However, Rue does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

Wang is directed to inter-proxy communication protocol for mobile IP. Specifically, Wang teaches a first access point sends an inter-proxy request message to one or more additional access points that request the IP configuration information for the node. [Wang, Abstract] However, Wang does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

As recognized within the Office Action, Rue and Wang both fail to teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

Muszynski teaches an inter-exchange soft handoff in a cellular telecommunications system. Musyznski does not teach roaming between multiple IEEE 802.11 standard based coverage areas. Muszynski teaches that in order to enable the reporting assistance of the Mobile Station during soft handoff initiation, all Base Stations may transmit a CDMA downlink reference signal, referred to as a pilot signal. [Muszynski, col. 3, lines 9-11] Muszynski further teaches that the Mobile Station 30 will inform the Mobile Switching Center 14 via a pilot signal quality measurement report that the signal coming from the Base Station 24 has weakened below a predetermined threshold. The signal coming from the Base Station 24 is a cellular signal.

Muszynski does not teach establishing a first IEEE 802.11 standard based communication link and wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold. Accordingly, neither Rue, Wang, Muszynski nor their combination teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold.

In contrast to the teachings of Rue, Wang and Muszynski, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WIFI and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WIFI and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WIFI hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of Rue, Wang and Muszynski does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

The independent Claim 14 is directed to a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas. The method comprises associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points, establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server, configuring a communication path to the mobile communication device via the nomadic server according to the IP address of the first IEEE 802.11 standard based access point and the first IEEE 802.11 standard based communication link, detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point, registering the mobile communication device with the nomadic server including an IP address of the second IEEE 802.11 standard based access point, establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11

standard based access point and re-configuring the communication path according to the IP address of the second IEEE 802.11 standard based access point and the second IEEE 802.11 standard based communication link, wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold. As described above, the combination of Rue, Wang and Muszynski does not teach wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold. For at least these reasons, the independent Claim 14 is allowable over Rue, Wang, Muszynski and their combination.

Claim 18 is dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang, Muszynski and their combination. Accordingly, Claim 18 is also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 15-17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Rue, Wang, Muszynski in view of U.S. Patent Pub. No. 2002/0147008 to Kallio et al. (hereinafter "Kallio"). The Applicants respectfully disagree.

Claims 15-17 are dependent on the independent Claim 14. As discussed above, the independent Claim 14 is allowable over Rue, Wang, Muszynski and their combination. Accordingly, Claims 15-17 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claim 38 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2004/0203802 to McCormick et al. (hereinafter "McCormick") in view of Ibe and further in view of U.S. Patent Pub. No. 20040204097 to Scheinert et al. (hereinafter "Scheinert"). The Applicants respectfully disagree.

McCormick is directed to a process for optimizing speech coding as a function of end user device characteristics. [McCormick, Abstract] However, McCormick does not teach the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. Instead, the second and fourth communication links of McCormick are over the cellular networks 131 and 141 between the base stations 133, 144 and the RNCs 132, 142 (i.e. asserted controller devices) as shown in Figure 1. Thus, McCormick does not teach the presently claimed invention.

As described above, Ibe is directed to a method of seamless roaming between wireless local area networks and cellular carrier networks. However, Ibe does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth

communication links are over non-cellular networks. Instead, Ibe is only cited for the purpose of teaching the mobile communication device notifying an interface server if the first communication link falls below a threshold. Accordingly, Ibe does not teach the presently claimed invention.

Scheinert is directed to an internet base station that is configured to convey wireless traffic between a mobile station and a conventional wireless network via the Internet. [Scheinert, Abstract] Scheinert teaches that an Internet based network 40 comprises Internet base stations 42 connected via Internet links 47 to Internet base station controllers 48. [Scheinert, ¶ 0028, Figure 5] Scheinert further teaches that multiple Internet base station controllers 48 are connected to the Mobile switching center 28, and hence to wireless network 34. [Scheinert, ¶ 0027, Figure 4] Scheinert then teaches that the connection between the Internet base station controller 48 and the mobile switching center 28 is a dedicated connection 49, such as a T1 or T3 line. [Scheinert, ¶ 0027, Figure 4] Therefore, Scheinert does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. Accordingly, Scheinert does not teach the presently claimed invention.

As described above, McCormick, Ibe and Scheinert all fail to teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks As a result, the combination of McCormick, Ibe and Scheinert does not teach the presently claimed invention.

In contrast to the teachings of McCormick, Ibe and Scheinert, the presently claimed invention is directed to a system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as WIFI and cellular networks for voice, data and video communication. Use of the system enables a combination of different types of wireless networks such as WIFI and cellular for providing access to the mobile communication device and makes use of the Voice over Internet (VOIP) networks for switching the calls whenever possible. Specifically, the system enables telephone communications that can be initiated using VOIP while within a VOIP access point, such as a WIFI hotspot, and enables telephone communications that can be initiated using a cellular network while within a cellular area and outside of a VOIP access point. As described above, the combination of McCormick, Ibe and Scheinert does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks.

The independent Claim 38 is directed to a method of providing communications between mobile communication devices. The method comprises routing a communication over a first

communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device, routing the communication over a second communication link between the first cellular base station and a first controller device, routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network, routing the communication over a fourth communication link between the second controller device and a second cellular base station and routing the communication over a fifth communication link between the second cellular base station and the second communication device, wherein the first mobile communication device notifies an interface server if the first communication link falls below a threshold and further wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. As described above, the combination of McCormick, Ibe and Scheinert does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. For at least these reasons, the independent Claim 38 is allowable over McCormick, Ibe, Scheinert and their combination.

Allowable Subject Matter

Within the Office Action, Claims 1-13 have been allowed.

Applicant respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: February 16, 2014

By: /Jonathan O. Owens/
Jonathan O. Owens
Reg. No.: 37,902
Attorneys for Applicants

Electronic Acknowledgement Receipt

EFS ID:	18214580
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
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Filer:	Jonathan O Owens
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Arguments/Remarks Made in an Amendment	Response_2_16_2014.pdf	45687 7c6df9859e1ee67c77e211e8b106bdfab0e06d0f	no	6

Warnings:	
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/240,776	Applicant(s) GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02/16/2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-18 and 38* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☒ Claim(s) *1-13* is/are allowed.

7)☒ Claim(s) *14-18 and 38* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *12/09/2013*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Remarks

2. The present Office Action is based upon the Applicant's arguments/amendment filed on Feb. 16, 2014. **Claims 1-18 and 38** are still pending in the present application. **This Action is made FINAL**.

Information Disclosure Statement

3. The information disclosure statement submitted on 12/09/2013 has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 103

4. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

A. **Claims 14 and 18** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Rue (US Patent Application Publication # 20030185172 A1)** in view of **Wang (US Patent Application Publication # 20040114559 A1)** and further in view of **Muszynski (US Patent # 6009328)**.

Consider **claim 14**, Rue discloses a method of providing communications for a mobile communication device that roams between multiple IEEE 802.11 standard based coverage areas (FIGS. 1 and 3, par. [0010] for a mobile node moving between the WLAN areas), the method comprising:

associating the mobile communication device with a nomadic server, wherein the nomadic server is coupled to one or more IEEE 802.11 standard based access points (FIG. 2, par. [0029] and [0030] for MAS 104 receiving access request from mobile node 101);

establishing a first IEEE 802.11 standard based communication link between the mobile communication device and a first IEEE 802.11 standard based access point (par. [0029] for *performing communication* through the first access point 102 after receiving Access_Res and Association_Res);

registering the mobile communication device with the nomadic server [including providing an IP address of the first IEEE 802.11 standard based access point to the nomadic server] (par. [0029] for MAS confirming the location move based on received Assocaion_Req and Access_Req);

configuring a communication path to the mobile communication device via the nomadic server according to [the IP address of the first IEEE 802.11 standard based access point and] the first IEEE 802.11 standard based communication link (par. [0029] for MAS confirming the location move based on received Assocaion_Req, Access_Req, Access_Res and Association_Res; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

detecting movement of the mobile communication device into a coverage area of a second IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened);

registering the mobile communication device with the nomadic server [including an IP address of the second IEEE 802.11 standard based access point] (par. [0030] for sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed);

establishing a second IEEE 802.11 standard based communication link between the mobile communication device and the second IEEE 802.11 standard based access point (par. [0030] for the mobile node 101 can *perform communication* through the second access point 103); and

re-configuring the communication path according to [the IP address of the second IEEE 802.11 standard based access point and] the second IEEE 802.11

standard based communication link (par. [0030] for the mobile node 101 can perform communication through the second access point 103; Note: it is inherently taught and well-known that the a communication link is set up based on the identification of a mobile station and the identification of an access point (or mobile station));

wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold (par. [0030] for the mobile node 101 concludes that the signal intensity of the first access point has been weakened and notifying MAS 104 by sending Reassociation_Req and Handover_Req).

However, Rue may fail to explicitly disclose providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server.

In the same field of endeavor, Wang discloses providing an IP address of the first IEEE 802.11 standard based access point and an IP address of the second IEEE 802.11 standard based access point to the nomadic server (FIGS. 2, 4 and 5, par. [0044] and [0045] for an IP address of the sending access point (e.g. claimed second access point) and the IP address of the target access point (e.g. the first access point) with consideration of FA, HA or DHCP as the claimed nomadic server).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the IP addresses of access points as taught by Wang to registration with an access point (when a mobile station moves the coverage area of one access point to a new access point) as disclosed by Rue for purpose of

including the IP addresses of the access points during the accessing or registration process.

However, Rue as modified by Wang fails to explicitly disclose wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold.

In the same field of endeavor, Muszynski discloses wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold (FIG. 1, col. 10 lines 6-8 for MS 30 will inform MSC 14 (considered as claimed nomadic server or to include the nomadic server) via a pilot signal quality measurement report that the signal coming from BS 24 has weakened below a predetermined threshold).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate informing a controller when a mobile station determines a received signal coming from a serving base station has weakened below a predetermined threshold as taught by Muszynski to the system including a mobile node which concludes that the signal intensity of an access point has been weakened as disclosed by Rue as modified by Wang for purpose of informing the controller about the received signal quality received from a serving base station when the signal quality is below a predetermined threshold.

Consider **claim 18**, Rue as modified by Wang as modified by Muszynski discloses the claimed invention **as applied to claim 14 above**, and Rue further discloses wherein registering the mobile communication device with the nomadic server

provides a connectivity status of the mobile communication device while the mobile communication device is within a specific coverage area of a specific IEEE 802.11 standard based access point (par. [0030] for when the mobile node moves to the second access point 103 and detecting the signal intensity of the first access point has been weakened, and sending Reassociation_Req and Handover_Req to MAS 104, and sending back Reassociation_Res to the mobile node 101 to notify that the handover has been completed).

B. **Claims 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rue** in view of **Wang** in view of **Muszynski** and further in view of **Kallio (US Patent Application Publication # 20020147008 A1)**.

Consider **claim 15 as applied to claim 14 above**, Rue as modified by Wang as modified by Muszynski discloses the claimed invention except disclosing associating the mobile communication device to the nomadic server at the mobile switching center.

In the same field of endeavor, Kallio discloses associating the mobile communication device to the nomadic server at the mobile switching center (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a

Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang as modified by Muszynski for purpose of updating location of the mobile device at the MSC.

Consider **claim 16 as applied to claim 14 above**, Rue as modified by Wang as modified by Muszynski discloses the claimed invention except providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server.

In the same field of endeavor, Kallio discloses providing a routing association to a mobile switching center within a cellular network, wherein the routing association associates the mobile communication device to the interface server (FIG. 1, par. [0011] and [0015] for sending measurement reports to the WMC (the nomadic server) of the wireless LAN, where the handover algorithm generates a handover request to the Mobile Switching Center (MSC), via the Wireless Mobile Center (WMC) of the wireless LAN).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified

by Wang as modified by Muszynski for purpose of updating location of the mobile device at the MSC.

Consider **claim 17 as applied to claim 16 above**, Kallio further discloses routing a communication, from an end destination device and intended for the mobile communication device, from the mobile switching center to the interface server according to the routing association, and routing the communication from the interface server to the mobile communication device over the communication path (it is inherently taught and well-known that an end communication device can communicate a call to the mobile device in WLAN network, where the call is routed through MSC to WMC and finally to the mobile station).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a Mobile Switching Center with a Wireless Mobile Center for reporting a handover request as taught by Kallio to the mobile access server (MAS) for managing roaming or handover of a mobile device between different access points of WLAN network(s) as disclosed by Rue as modified by Wang as modified by Muszynski for purpose of updating location of the mobile device at the MSC.

C. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over **McCormick et al. (US Patent Application Publication # 20040203802 A1)** (hereinafter McCormick) in view of **Ibe** and further in view of **Scheinert et al. (US Patent Application Publication # 20040204097 A1)** (hereinafter Scheinert).

Consider **claim 38**, McCormick discloses a method of providing communications between mobile communication devices (FIGS. 1 and 2, par. [0018] and [0019] for call process between calling party 101 and calling party 101'), the method comprising:

routing a communication over a first communication link between a first mobile communication device and a first cellular base station, wherein the communication is directed from the first mobile communication device to a second communication device (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101');

routing the communication over a second communication link between the first cellular base station and a first controller device (FIGS. 1 and 2, par. [0019] for the call route or connection between the base station 133 and RNC 132);

routing the communication over a third communication link between the first controller device and a second controller device, wherein the third communication link comprises a Internet Protocol network (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208 inserting a parameter into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142);

routing the communication over a fourth communication link between the second controller device and a second cellular base station (FIGS. 1 and 2, par. [0014], [0019] and [0020] for the link between RNC 142 and base station 144); and

routing the communication over a fifth communication link between the second cellular base station and the second communication device (FIGS. 1 and 2, par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101').

McCormick further discloses the first communication link falls below a threshold (FIG. 1, par. [0015] and [0016] for the radio unit in the wireless subscriber device 101 re-tunes the transmitter-receiver equipment contained therein to use these designated radio frequencies and orthogonal coding. Once the communication connection is established, the control messages are typically transmitted to adjust transmitter power and change the transmission channel when required to handoff this wireless subscriber device 101 to an adjacent cell, when the subscriber moves from the present cell to one of the adjoining cells (i.e. the radio link 111 falls below a threshold)).

However, McCormick may fail to explicitly disclose wherein the mobile communication device notifies an interface server if the first communication link falls below a threshold.

In the same field of endeavor, Ibe discloses the mobile communication device notifies an interface server if the first communication link falls below a threshold (col. 3 lines 32-54 for when a mobile device moves closer to the edge of a cell (of a network), it monitors SNR. If the SNR drops to a threshold d, then the mobile device sends Handoff request message to a Cellular Proxy (claimed interface server) connected to cellular network).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate sending a Handoff Request message to

a Cellular Proxy when a mobile device moves and determines the SNR drops to a threshold level as taught by Ibe to the method of call routing when a device is handing off from one base station to an adjacent base station as disclosed by McCormick for purpose of requesting a handoff to an device for managing handoff and routing the calls.

Although McCormick discloses the first and fifth communication links are over cellular networks (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101', par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101'), and

the third communication link is over non-cellular networks (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208 inserting a parameter into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142), McCormick as modified by Ibe fails to disclose wherein the second and fourth communication links are over non-cellular networks.

In the same field of endeavor, Scheinert discloses wherein the second and fourth communication links are over non-cellular networks (FIG. 5, par. 0028 for Internet based network 40 with Internet connection 49 for connecting of Internet base station IBS 42 with IBSC 48, and par. 0029 for IBS 42 communicate with one or more mobile stations 24 over a standard air interface, and replacing the conventional; thus the second and

fourth links are non-cellular network when the calling party 101 and calling party 101' are located in the same or different Internet based network 40).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate Internet based network Internet base stations connected via Internet links to Internet base station controllers as taught by Scheinert to the cellular communication network as disclosed by McCormick as modified by Ibe for purpose of conveying wireless traffic between a mobile station and a conventional wireless network via the Internet.

Allowable Subject Matter

5. **Claims 1-13** are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Independent **claim 1**, are allowable in view of Applicant's amendments and arguments as filed on 08/23/2013.

Therefore, **claims 1-13** are considered novel and non-obvious and are therefore allowed.

Response to Arguments

6. Applicant's arguments filed 02/16/2014 have been fully considered but they are not persuasive.

On pages 2 and 3 of the Applicant’s remarks with respect to claim 14, Applicant argues, “Rue is directed to an apparatus and method for supporting mobility between subnetworks of mobile nodes in a wireless LAN….Wang is directed to inter-proxy

communication protocol for mobile IP. Specifically, Wang teaches a first access point sends an inter-proxy request message to one or more additional access points that request the IP configuration information for the node…. As recognized within the Office Action, Rue and Wang both fail to teach wherein the mobile communication device notifies the nomadic server if the first… Muszynski teaches an inter-exchange soft handoff in a cellular telecommunications system. Musyznski does not teach roaming between multiple IEEE 802.11 standard based coverage areas… Muszynski does not teach establishing a first IEEE 802.11 standard based communication link and wherein the mobile communication device always attempts to notify the nomadic server if the first communication link falls below a threshold. Accordingly, neither Rue, Wang, Muszynski nor their combination teach wherein the mobile communication device notifies the nomadic server if the first communication link falls below a threshold." Examiner respectfully disagrees. In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant should consider the teachings of Musyznski for modifying the teachings of Rue in view of Wang.

> MPEP 2143:
> The Supreme Court in KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 415-421, 82 USPQ2d 1385, 1395-97 (2007) identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in Graham. The key

> to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious.
> I. EXEMPLARY RATIONALES
> Exemplary rationales that may support a conclusion of obviousness include:
>
> (A) Combining prior art elements according to known methods to yield predictable results;
> (B) Simple substitution of one known element for another to obtain predictable results;
> (C) Use of known technique to improve similar devices (methods, or products) in the same way;
> (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
> (E) "Obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
> (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
> (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

As examiner clarify on the motivation statement, "it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate informing a controller when a mobile station determines a received signal coming from a serving base station has weakened below a predetermined threshold as taught by Muszynski to the system including a mobile node which concludes that the signal intensity of an access point has been weakened as disclosed by Rue as modified by Wang for purpose of informing the controller about the received signal quality received from a serving base station when the signal quality is below a predetermined threshold."

Applicant's arguments with regards to dependent claims are based on the deficiency of the references to support the limitations of independent claim 14. The

arguments are respectfully traversed for the same reason(s) as stated above for rejection of claim 14.

On the first full paragraph of page 5 of the Applicant's remarks with respect to claim 38, Applicant argues, "Scheinert is directed to an internet base station that is configured to convey wireless traffic between a mobile station and a conventional wireless network via the Internet. [Scheinert, Abstract] Scheinert teaches that an Internet based network 40 comprises Internet base stations 42 connected via Intemet links 47 to Internet base station controllers 48. [Scheinert, ¶ 0028, Figure 5] Scheinert further teaches that multiple Internet base station controllers 48 are connected to the Mobile switching center 28, and hence to wireless network 34. [Scheinert, ¶ 0027, Figure 4] Scheinert then teaches that the connection between the Internet base station controller 48 and the mobile switching center 28 is a dedicated connection 49, such as a T1 or T3 line. [Scheinert, ¶ 0027, Figure 4] Therefore, Scheinert does not teach wherein the first and fifth communication links are over cellular networks and the second, third and fourth communication links are over non-cellular networks. Accordingly, Scheinert does not teach the presently claimed invention." Examiner respectfully disagrees. McCormick discloses the first and fifth communication links are over cellular networks (FIGS. 1 and 2, par. [0019] for connection between calling party 101 and base station 133 when calling party initiates a call for calling party 101', par. [0019] and [0020] for completing the call, from base station 144 to the called party device 101'), and the third communication link is over non-cellular networks (FIGS. 1 and 2, par. [0020] for if the routing of the call is over a Voice over IP connection, at step 208 inserting a parameter

into the IP trunk routing message and the Gateway GPRS Support Node (GGSN) 106B extends the call connection to the IP Network 107, between RNC 132 and RNC 142). Scheinert discloses wherein the second and fourth communication links are over non-cellular networks (FIG. 5, par. 0028 for Internet based network 40 with Internet connection 49 for connecting of Internet base station IBS 42 with IBSC 48, and par. 0029 for IBS 42 communicate with one or more mobile stations 24 over a standard air interface, and replacing the conventional; thus the second and fourth links are non-cellular network when the calling party 101 and calling party 101' are located in the same or different Internet based network 40).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate Internet based network Internet base stations connected via Internet links to Internet base station controllers as taught by Scheinert to the cellular communication network as disclosed by McCormick as modified by Ibe for purpose of conveying wireless traffic between a mobile station and a conventional wireless network via the Internet.

Applicant(s) is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set forth in the claims, *In re Tanaka et al.* 193 USPQ 139, (CCPA) 1977.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to Applicant’s disclosure.

a. Trossen et al. (U.S. Patent Application Publication # 20030157899 A1) disclose System for rate control of multicast data delivery in a wireless network.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allahyar Kasraian/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 13/240,776	Applicant(s)/Patent Under Reexamination GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0157899 A1	08-2003	Trossen et al.	455/69
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHAYAR KASRAIAN	2642

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
Text search.	See search history.	2/29/2012	HN
370	338, 331	10/27/2012	AK
455	436, 439, 445	10/27/2012	AK

SEARCH NOTES		
Search Notes	Date	Examiner
East. Text search.	2/29/2012	HN
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached seach strategy)	10/27/2012	AK
Inventor name and Assignee search in PALM ExPo and EAST	10/27/2012	AK
(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.)	10/27/2012	AK
EPO Data base: http://worldwide.espacenet.com/	10/27/2012	AK
Updated search	2/6/2013	AK
Updated search	6/17/2013	AK
Updated search	11/14/2013	AK
Updated search	5/9/2014	AK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	"20120108179".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 15:37
S1	7	12/257928	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:21
S2	109	("20050169248" | "5555286" | "7269413").PN. ("7496189").PN. ("20010004588" | "20010012379" | "20020016189" | "20020136363" | "20030063714" | "20030133450" | "20040072583" | "20040176123" | "20050003797" | "20050101287" | "20050209781" | "20060052134" | "20060133582" | "20060217136" | "20060219542" | "20070003024" | "20070201391" | "20070273519" | "20070280428" | "20090197567" | "20090227225" | "20100098062" | "20100291894" | "5339351" | "6317049" | "6366772" | "6480578" | "6526125" | "7079627" | "7095733" | "7231218" | "7418087" | "7706356" | "7734019").PN. ("20010003843" | "20030109245" | "20030158668" | "20050111630" | "20050201358" | "20050265326" | "20060133582" | "20070201391" | "20070287473" | "20080057944" | "20080273670" | "20090047924" | "20090186596" | "5379337" | "5497149" | "5646987" | "6240285" | "6415018" | "6690932" | "7026925" | "7679505").PN. ("20020054667" | "20040257273" | "20050070315" | "20050123102" | "20060009190" | "20060043164" | "20060234727" | "20080018452" | "20080026728" | "20080064363" | "20080070546" | "20080144779" | "20080200143" | "20090086932" | "20090097474" | "20090144260" | "20090214011" | "20100002845" | "20100002846" | "20100003946" | "20100003947" | "20100003949" | "20100003954" | "20100003955" | "20100107192" | "20110014923" | "5937038" | "6137877" | "6591112" |	US-PGPUB; USPAT	OR	ON	2013/11/14 18:26

		"6642844" | "6678357" | "7098787" | "7386103" | "7773975" | "8014341").PN. ("20050002499" | "20050159132" | "20080304630" | "7920679" | "8102986").PN. ("20020054667" | "20030133450" | "20050123102" | "20050232225" | "20060234726" | "20060293024" | "20080026728" | "20090310602" | "20120214437" | "7496189" | "8295801" | "8320871").PN. ("20060072547" | "20100215153" | "20120309340" | "20130012156" | "8364113").PN. ("20060072547" | "20100215153" | "20120309340" | "20130012156" | "8364113").PN.				
S3	9	S2 and header with type near4 emergency	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:29
S4	40	(header payload) with type near4 emergency and (@ad<="20080703" @rlad<="20080703")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:32
S5	28	S4 NOT (ray near2 amar).in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:34
S6	4	S2 and dupray	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:41
S7	2	"20070287473".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:42
S8	1	(body) with type near4 emergency with code and (@ad<="20080703" @rlad<="20080703")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:49
S9	51	(body message) with emergency near2 (code indicator index) and emergency near2 (code indicator index) with (type kind) and (@ad<="20080703" @rlad<="20080703")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 18:51
S10	39	S9 NOT (ray near2 amar).in.	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2013/11/14 18:52

			DERWENT; IBM_TDB			
S11	1	((body message) with emergency near2 (code indicator index) and emergency near2 (code indicator index) with (type kind)).clm. and (ray near2 amar).in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 00:56
S12	7	12/257641	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 00:58
S13	0	(abbreviat$3 near3 code with emergency with (type kind)).clm. and (ray near2 amar).in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:01
S14	0	(abbreviat$5 near5 code with emergency with (type kind)).clm. and (ray near2 amar).in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:03
S15	0	(abbreviat$5 near5 code with emergency with (type kind)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:03
S16	4	(abbreviat$5 near5 code with emergency with (type kind)) and S12	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:03
S17	13	(body message) with emergency near2 (code indicator index) and (select$5 choos$3) with emergency near3 (type kind) with (code indicator index) and (@ad<="20080703" @rlad<="20080703")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:14
S18	1	S17 NOT (ray near2 amar).in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:14
S19	24	(select$5 choos$3 enter$3) with emergency near3 (type kind) with (code indicator index) NOT (ray near2 amar).in. and (@ad<="20080703" @rlad<="20080703")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:17
S20	86	(select$5 choos$3 enter$3) with emergency with (type kind) with (code indicator index) NOT (ray near2 amar).in. and (@ad<="20080703" @rlad<="20080703")	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2013/11/15 01:31

			DERWENT; IBM_TDB			
S21	37	S20 and "455"/$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 01:32
S22	2	"20110298634".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 10:23
S23	2	"20090089843".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/15 10:24

EAST Search History (Interference)

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11/ 15/ 2013 4:41:33 PM
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	6	("20030177196" | "20030232615" | "20050044138" | "20070124490" | "6795700" | "7483984").PN.	US-PGPUB; USPAT	OR	ON	2014/05/09 13:32
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S2	2	"20020147008".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 12:01
S3	3	("6909705", "20040229618", "6515983").pn.	US-PGPUB; USPAT	OR	ON	2012/10/21 12:31
S4	66	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (wlan (wirelss near2 LAN) wifi) with (hand$2off hand$2over (hand$3 adj2 (over off))) with (cellular gsm cdma umts) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S5	13	S4 and ((signal near2 strength) ssi rssi) with threshold	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S6	3	10/688608	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 17:09
S11	4	"roaming between wi-fi network" and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 23:38
S12	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (status condition) with (remov$3 delet$3) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 13:58
S13	71	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((first with second) plurality different) with (wlan (wirelss	US-PGPUB; USPAT; USOCR;	OR	ON	2012/10/26 14:20

		near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S14	10	S13 and (access near2 point) with ip near2 address	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:22
S15	66	(370/338,331-334.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:55
S16	68	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 15:55
S17	27	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (mov$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:01
S18	17	(370/338,331-334.ccls.) and (first origina$5 old) near2 (access near2 point) with (ip near2 address) and (second target new) near2 (access near2 point) with (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:52
S19	25	("370"/$.ccls. "455"/$.ccls.) and (first origina$5 old) near2 (access near2 point) near8 (ip near2 address) and (second target new) near2 (access near2 point) near8 (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 17:06
S20	70	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:32
S21	28	S20 and called near2 (device terminal phone telephone party)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:35
S22	2	"20040214574".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:46
S23	42	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and call with rout$3 with second near2 (RNC BSC MSC	US-PGPUB; USPAT; USOCR;	OR	ON	2012/10/27 00:51

		"switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S24	12	(455/445.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 11:59
S25	1	09/783818	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 13:13
S26	28	(455/445.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 14:49
S27	3	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:23
S28	8	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:24
S29	9	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:25
S30	1	13/139637	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:48
S31	191	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (destination end$2device end$2user) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/02 23:02
S32	39	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (receiving) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/03 00:20
S33	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with	US-PGPUB; USPAT; USOCR;	OR	ON	2013/02/04 17:18

		ad$2hoc with cellular and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S34	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with ad$2hoc same connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:21
S35	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with (peer adj4 peer) and connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:22
S36	5	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with bluetooth with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:24
S37	13	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (receiving destination) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:38
S38	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (terminat$5 end) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:42
S39	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:46
S40	99	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:50
S41	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular same (ad$2hoc (peer adj3 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:51
S42	16	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$hoc and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:23
S43	0	(370/310-350.ccls. "455"/$.ccls.) and re$direct$4 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with	US-PGPUB; USPAT; USOCR;	OR	ON	2013/02/04 22:34

		connection and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S44	16	(370/310-350.ccls. "455"/$.ccls.) and rout$3 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:35
S45	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S46	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (bluetooth) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S47	3	"20050070288"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:58
S48	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:06
S49	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (connect$4 establish$3) with (new second$2) near2 (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:08
S50	39	(455/41.1-41.3.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:20
S51	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:19
S52	23	("370"/$.ccls. "455"/$.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:21
S53	60	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and msc with connect$3	US-PGPUB; USPAT;	OR	ON	2013/02/05 16:55

		with (several mutiple plurality) near6 bsc and bsc with connect$3 with (bts (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S54	11	("370"/$.ccls. "455"/$.ccls.) and (rnc bsc) with indirect$3 with connect$3 with (bs$2 (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 17:29
S55	2	"20030012350".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 10:35
S56	23	(MSC RNC) with independent with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:39
S57	21	(MSC RNC) with shar$3 with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:43
S58	11	(MSC RNC) with operat$3 with (different several two)near3 (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:45
S59	1	"8078164"	USPAT	OR	ON	2013/11/12 04:53
S60	54	seam$2less near3 (hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with cellular and (link leg path) with (wlan (wireless near2 lan)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:43
S61	808	seam$2less with (hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with (destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:43
S62	26	S60 not Gallagher.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:47
S63	9	S62 and (link leg path) with (target destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:48

S64	16	(hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with cellular and (link leg path) with (wifi "ieee 802.11" "802.11" wlan (wireless near2 lan)) same (link leg path) with (target destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:55
S65	1	("455"/$.ccls. "370"/$.ccls.) and notif$7 near3 (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 12:30
S66	122	("455"/$.ccls. "370"/$.ccls.) and (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 12:56
S67	6	("455"/$.ccls. "370"/$.ccls.) and report$3 near3 (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 14:00
S68	15	(455/445.ccls.) and (IP internet) near2 network with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 18:35
S69	126	("455"/$.ccls. "370"/$.ccls.) and (report$3 notif$7) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 09:31
S70	16	("455"/$.ccls. "370"/$.ccls.) and (report$3 notif$7) near7 (server RNC MSC controller controling) with (below less) near5 threshold with (quality SNR SNIR strength) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 09:33
S71	0	(455/445.ccls.) and (IP internet) near2 (link path) with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:12
S72	3	("370"/$.ccls.) and (IP internet) near2 (link path) with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:13
S73	10	("370"/$.ccls.) and (IP internet) near2 (link path) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2013/11/14 14:19

		(@ad<="20040106" @rlad<="20040106")	DERWENT; IBM_TDB			
S74	9	("455"/$.ccls.) and (IP internet) near2 (link path) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:22
S75	136	("455"/$.ccls. "370"/$.ccls.) and (IP internet) near2 (link path) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/06 17:20
S76	0	("455"/$.ccls. "370"/$.ccls.) and (IP internet) near2 (link path) with femto near3 ((base adj2 station) BS) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/06 17:21
S77	0	("455"/$.ccls. "370"/$.ccls.) and (IP internet) near2 (link path) with lub with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/06 17:29

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	13240776
Filing Date	2011-09-22
First Named Inventor	Vasudevan Ganesan
Art Unit	2642
Examiner Name	Allahyar Kasraian
Attorney Docket Number	HAVA-00401

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6795700	B2	2004-09-21	Karaoguz et al.	
	2	7483984	B1	2009-01-27	Jonker et al.	

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	1	20030177196	A1	2003-09-18	Bhasin et al.	
	2	20030232615	A1	2003-12-18	Kim et al.	
	3	20050044138	A1	2005-02-24	Albert et al.	
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Receipt date: 12/09/2013	Application Number	13240776 13240776 - GAU: 2642
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date	2011-09-22
(Not for submission under 37 CFR 1.99)	First Named Inventor	Vasudevan Ganesan
	Art Unit	2642
	Examiner Name	Allahyar Kasraian
	Attorney Docket Number	HAVA-00401

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.K./

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013	11/14/2013	11/14/2013			
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	3	✓	✓	✓	✓	=	=			
	4	✓	✓	✓	✓	=	=			
	5	✓	✓	✓	✓	=	=			
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	11	✓	✓	O	O	=	=			
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	35	-	-	-	-	-	-			
	36	-	-	-	-	-	-			

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	13240776	GANESAN, VASUDEVAN
	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013	11/14/2013	11/14/2013			
	37	-	-	-	-	-	-			
	38	✓	✓	✓	✓	✓	✓			

PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2642
Vasudevan Ganesan	Examiner: Kasraian, Allahyar
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED May 12, 2014**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
	Customer No. 28960

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) A method of providing communications for a mobile communication device that roams between multiple different types of wireless networks, the method comprising:

establishing a first communication link between the mobile communication device and an end destination device, wherein the first communication link includes a first wireless communication link between the mobile communication device and a first type of wireless network;

monitoring a signal strength of the first wireless communication link;

when the signal strength drops below a predetermined threshold, notifying an interface server with the mobile communication device and establishing a second communication link between the interface server and the end destination device without disrupting the first communication link;

notifying the mobile communication device to terminate transmission over the first communication link; and

re-directing the second communication link from the interface server to the mobile communication device, thereby establishing a second wireless communication link between the mobile communication device and the second type of wireless network.

2. (previously presented) The method of claim 1 wherein the first type of wireless communication link comprises a IEEE 802.11 standard based communication link, and the first type of wireless network includes a IEEE 802.11 standard based network access point.

3. (original) The method of claim 2 wherein the second type of wireless network includes a wireless cellular network.

4. (previously presented) The method of claim 1 wherein establishing the first communication link includes routing through a voice over internet protocol network.

5. (original) The method of claim 1 wherein establishing the first communication link includes routing through a cellular network.

6. (previously presented) The method of claim 1 wherein establishing the second communication link includes routing through a voice over internet protocol network.

7. (original) The method of claim 1 wherein establishing the second communication link includes routing through a cellular network.

8. (original) The method of claim 1 further comprising providing a connectivity status by the mobile communication device to the interface server while the mobile communication device is within a first coverage area of the first type of wireless network.

9. (original) The method of claim 8 further comprising providing a routing association to a mobile switching center within the second type of wireless network, wherein the routing association associates the mobile communication device to the interface server.

10. (original) The method of claim 9 further comprising routing a termination communication intended for the mobile communication device from the mobile switching center to the interface server according to the routing association when the connectivity status is active, and routing the termination communication from the interface server to the mobile communication device over the first type of wireless network.

11. (previously presented) The method of claim 10 further comprising when the connectivity status is not provided to the interface server, the routing association is removed from the mobile switching center.

12. (original) The method of claim 1 further comprising registering the mobile communication device with a mobile switching center within the second type of wireless network when the signal strength drops below the predetermined threshold.

13. (original) The method of claim 12 further comprising setting up the second communication link with the end destination device and forwarding the second communication link to the interface server.

Claims 14-38 (canceled)

REMARKS

The Applicant respectfully requests further examination and consideration of the claims in view of the above amendments and the arguments set forth fully below. Claims 1-18 and 38 were pending in this application. Within the Office Action, Claims 14-18 and 38 have been rejected and Claims 1-13 have been allowed. By the above amendments, Claims 14-18 and 38 have been canceled. Accordingly, Claims 1-13 are now pending

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 14 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2003/0185172 to Rue et al. (hereinafter "Rue") in view of U.S. Patent Pub. No. 2004/0114559 to Wang et al. (hereinafter "Wang") and further in view of U.S. Patent No. 6,009,328 to Muszynski (hereinafter "Muszynski"). The Applicants respectfully disagree. However, in order to further the prosecution of the present application, Claims 14 and 18 have been canceled by the above amendments.

Within the Office Action, Claims 15-17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Rue, Wang, Muszynski in view of U.S. Patent Pub. No. 2002/0147008 to Kallio et al. (hereinafter "Kallio"). The Applicants respectfully disagree. However, in order to further the prosecution of the present application, Claims 15-17 have been canceled by the above amendments.

Within the Office Action, Claim 38 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. No. 2004/0203802 to McCormick et al. (hereinafter "McCormick") in view of Ibe and further in view of U.S. Patent Pub. No. 20040204097 to Scheinert et al. (hereinafter "Scheinert"). The Applicants respectfully disagree. However, in order to further the prosecution of the present application, Claim 38 has been canceled by the above amendments.

Allowable Subject Matter

Within the Office Action, Claims 1-13 have been allowed.

Applicant respectfully submits that the claims are in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: July 3, 2014

By: /Jonathan O. Owens/
Jonathan O. Owens
Reg. No.: 37,902
Attorneys for Applicants

Electronic Acknowledgement Receipt

EFS ID:	19491809
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	03-JUL-2014
Filing Date:	22-SEP-2011
Time Stamp:	14:30:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response_7_3_2014.pdf	40375 f97b382060400be64733b46508e2e2c848974bd9	yes	6

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	4
	Applicant Arguments/Remarks Made in an Amendment	5	6
Warnings:			
Information:			
	Total Files Size (in bytes):	40375	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/240,776	Filing Date 09/22/2011	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	07/03/2014	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 13	Minus	** 20	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/DIANE JOHNSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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NOTICE OF ALLOWANCE AND FEE(S) DUE

28960 7590 07/10/2014
HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

EXAMINER
KASRAIAN, ALLAHYAR

ART UNIT	PAPER NUMBER
2642	

DATE MAILED: 07/10/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

TITLE OF INVENTION: MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/10/2014

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

28960 7590 07/10/2014
HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

TITLE OF INVENTION: MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/10/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
KASRAIAN, ALLAHYAR	2642	455-432100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

28960 7590 07/10/2014

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SUNNYVALE, CA 94086

EXAMINER	
KASRAIAN, ALLAHYAR	

ART UNIT	PAPER NUMBER
2642	

DATE MAILED: 07/10/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/240,776	Applicant(s) GANESAN, VASUDEVAN	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *07/03/2014*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-13*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Remarks

The present Office Action is based upon the Applicant's amendment filed on 07/03/2014. **Claims 1-13** are now pending in the present application.

Allowable Subject Matter

Claims 1-13 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Independent **claim 1**, are allowable in view of Applicant's amendments and arguments as filed on 08/23/2013.

Therefore, **claims 1-13** are considered novel and non-obvious and are therefore allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	0	(first near2 (link path) with (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR strength) and second near2 (link path) with (server controller rnc msc) with ((without near4 (disconnect$5 disrupt$5)) maintain$3 hold$3 held) with first near2 (link path) with (callee calling near5 (device terminal phone telephone UE MS))).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/07/08 02:44
S1	1	13/240776	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/19 16:05
S2	2	"20020147008".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 12:01
S3	3	("6909705", "20040229618", "6515983").pn.	US-PGPUB; USPAT	OR	ON	2012/10/21 12:31
S4	66	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (wlan (wirelss near2 LAN) wifi) with (hand$2off hand$2over (hand$3 adj2 (over off))) with (cellular gsm cdma umts) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S5	13	S4 and ((signal near2 strength) ssi rssi) with threshold	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/21 17:58
S6	3	10/688608	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 17:09
S11	4	"roaming between wi-fi network" and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/25 23:38
S12	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (status condition) with (remov$3 delet$3) with (RNC BSC	US-PGPUB; USPAT; USOCR;	OR	ON	2012/10/26 13:58

		MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S13	71	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:20
S14	10	S13 and (access near2 point) with ip near2 address	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:22
S15	66	(370/338,331-334.ccls.) and ((first with second) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 14:55
S16	68	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (roam$3 hand$2off hand$2over (hand$3 adj2 (over off))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 15:55
S17	27	(370/338,331-334.ccls.) and (((first origina$5 old) with (second target new)) plurality different) with (wlan (wirelss near2 LAN) wifi) with (mov$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:01
S18	17	(370/338,331-334.ccls.) and (first origina$5 old) near2 (access near2 point) with (ip near2 address) and (second target new) near2 (access near2 point) with (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 16:52
S19	25	("370"/$.ccls. "455"/$.ccls.) and (first origina$5 old) near2 (access near2 point) near8 (ip near2 address) and (second target new) near2 (access near2 point) near8 (ip near2 address) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/26 17:06
S20	70	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:32
S21	28	S20 and called near2 (device terminal phone telephone party)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:35
S22	2	"20040214574".pn.	US-PGPUB; USPAT; USOCR;	OR	ON	2012/10/27 00:46

			EPO; JPO; DERWENT; IBM_TDB			
S23	42	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 00:51
S24	12	(455/445.ccls.) and IP near2 network with between with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 11:59
S25	1	09/783818	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 13:13
S26	28	(455/445.ccls.) and call with rout$3 with second near2 (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 14:49
S27	3	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:23
S28	8	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with server with threshold and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:24
S29	9	(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.) and notif$7 with threshold with link and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:25
S30	1	13/139637	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/10/27 16:48
S31	191	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (destination end$2device end$2user) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/02 23:02
S32	39	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (receiving) near3	US-PGPUB; USPAT; USOCR;	OR	ON	2013/02/03 00:20

		(device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S33	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$2hoc with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:18
S34	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with ad$2hoc same connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:21
S35	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and disconnect$5 with (peer adj4 peer) and connect$4 with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:22
S36	5	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with bluetooth with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:24
S37	13	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (receiving destination) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:38
S38	4	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (chang$3 establish$3) with new near2 (link path) with (terminat$5 end) near3 (device terminal MS mobile phone UE) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:42
S39	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:46
S40	99	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:50
S41	8	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular same (ad$2hoc (peer adj3 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 17:51
S42	16	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with ad$hoc	US-PGPUB; USPAT; USOCR;	OR	ON	2013/02/04 22:23

		and (@ad<="20040106" @rlad<="20040106")	EPO; JPO; DERWENT; IBM_TDB			
S43	0	(370/310-350.ccls. "455"/$.ccls.) and re$direct$4 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:34
S44	16	(370/310-350.ccls. "455"/$.ccls.) and rout$3 with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with connection and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:35
S45	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (ad$2hoc (peer adj4 peer) (point adj4 point)) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S46	0	(370/310-350.ccls. "455"/$.ccls.) and (rout$3 connection) near2 new with cellular same (bluetooth) with (dis$connect$4 los$3 thershold deteriorat$3) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:52
S47	3	"20050070288"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 22:58
S48	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (switch$3 chang$3) with (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:06
S49	0	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and (connect$4 establish$3) with (new second$2) near2 (link path) with (other adj2 party) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:08
S50	39	(455/41.1-41.3.ccls.) and ((hand$3 adj2 (off over)) hand$2off hand$2over) with cellular and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/04 23:20
S51	3	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and new near2 (link path) near5 ((destination near2 (device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 11:19
S52	23	("370"/$.ccls. "455"/$.ccls.) and new near2 (link path) near5 ((destination near2	US-PGPUB; USPAT;	OR	ON	2013/02/05 11:21

		(device terminal phone MS station party)) end$2device end$2user (other near2 party)) and (@ad<="20040106" @rlad<="20040106")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S53	60	(370/338,331-334.ccls. 455/432.1-433,436.444.ccls.) and msc with connect$3 with (several mutiple plurality) near6 bsc and bsc with connect$3 with (bts (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 16:55
S54	11	("370"/$.ccls. "455"/$.ccls.) and (rnc bsc) with indirect$3 with connect$3 with (bs$2 (base adj2 station)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/05 17:29
S55	2	"20030012350".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 10:35
S56	23	(MSC RNC) with independent with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:39
S57	21	(MSC RNC) with shar$3 with (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:43
S58	11	(MSC RNC) with operat$3 with (different several two)near3 (cellular mobile) near2 network and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/17 16:45
S59	1	"8078164"	USPAT	OR	ON	2013/11/12 04:53
S60	54	seam$2less near3 (hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with cellular and (link leg path) with (wlan (wireless near2 lan)) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:43
S61	808	seam$2less with (hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with (destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:43
S62	26	S60 not Gallagher.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:47

S63	9	S62 and (link leg path) with (target destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:48
S64	16	(hand$2over hand$2off (hand$3 near2 (off over))) and (link leg path) with cellular and (link leg path) with (wifi "ieee 802.11" "802.11" wlan (wireless near2 lan)) same (link leg path) with (target destination end$3 second$2 receiv$3 terminat$3) near3 (party device mobile phone UE MS) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 02:55
S65	1	("455"/$.ccls. "370"/$.ccls.) and notif$7 near3 (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 12:30
S66	122	("455"/$.ccls. "370"/$.ccls.) and (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 12:56
S67	6	("455"/$.ccls. "370"/$.ccls.) and report$3 near3 (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 14:00
S68	15	(455/445.ccls.) and (IP internet) near2 network with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/13 18:35
S69	126	("455"/$.ccls. "370"/$.ccls.) and (report$3 notif$7) with (below less) near5 threshold with (quality SNR SNIR) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 09:31
S70	16	("455"/$.ccls. "370"/$.ccls.) and (report$3 notif$7) near7 (server RNC MSC controller controling) with (below less) near5 threshold with (quality SNR SNIR strength) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 09:33
S71	0	(455/445.ccls.) and (IP internet) near2 (link path) with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:12
S72	3	("370"/$.ccls.) and (IP internet) near2 (link path) with connect$3 with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2013/11/14 14:13

		station) and (@ad<="20040106" @rlad<="20040106")	DERWENT; IBM_TDB			
S73	10	("370"/$.ccls.) and (IP internet) near2 (link path) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:19
S74	9	("455"/$.ccls.) and (IP internet) near2 (link path) with (RNC BSC MSC "switching center" (controller near3 (switch$3 base network))) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/11/14 14:22
S75	136	("455"/$.ccls. "370"/$.ccls.) and (IP internet) near2 (link path) with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/06 17:20
S76	0	("455"/$.ccls. "370"/$.ccls.) and (IP internet) near2 (link path) with femto near3 ((base adj2 station) BS) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/06 17:21
S77	0	("455"/$.ccls. "370"/$.ccls.) and (IP internet) near2 (link path) with lub with (base adj2 station) and (@ad<="20040106" @rlad<="20040106")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/06 17:29
S78	6	("20030177196" | "20030232615" | "20050044138" | "20070124490" | "6795700" | "7483984").PN.	US-PGPUB; USPAT	OR	ON	2014/05/09 13:32

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	0	(first near2 (link path) with (server controller rnc msc) with (below less) near5 threshold with (quality SNR SNIR strength) and second near2 (link path) with (server controller rnc msc) with ((without near4 (disconnect$5 disrupt$5)) maintain$3 hold$3 held) with first near2 (link path) with (callee calling near5 (device terminal phone telephone UE MS))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/07/08 02:43

7/8/2014 3:15:29 AM
C:\Users\akasraian\Documents\EAST\Workspaces\13240776_01.wsp

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

CPC									
Symbol								**Type**	**Version**
H04W		36	/	14				I	2013-01-01
H04W		36	/	18				A	2013-01-01
H04W		80	/	04				A	2013-01-01
H04W		88	/	18				I	2013-01-01
H04W		92	/	02				A	2013-01-01
H04W		60	/	04				F	2013-01-01
			/						
			/						
			/						
			/						
			/						
			/						
			/						
			/						
			/						

CPC Combination Sets									
Symbol								**Type**	**Set**	**Ranking**	**Version**
			/								
			/								

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	13	
/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642	07/08/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
455	432.1	H 0 4 W 4 / 00	

CROSS REFERENCE(S)

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
455	436	338			
370	331	332	380		

NONE		Total Claims Allowed: 13	
(Assistant Examiner)	(Date)		
/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642	07/08/2014	O.G. Print Claim(s) 1	O.G. Print Figure 1
(Primary Examiner)	(Date)		

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1		17		33										
2	2		18		34										
3	3		19		35										
4	4		20		36										
5	5		21		37										
6	6		22		38										
7	7		23												
8	8		24												
9	9		25												
10	10		26												
11	11		27												
12	12		28												
13	13		29												
	14		30												
	15		31												
	16		32												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	13	
/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642	07/08/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No. 20140707

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHAYAR KASRAIAN	2642

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
Text search.	See search history.	2/29/2012	HN
370	338, 331	10/27/2012	AK
455	436, 439, 445	10/27/2012	AK

SEARCH NOTES		
Search Notes	Date	Examiner
East. Text search.	2/29/2012	HN
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached seach strategy)	10/27/2012	AK
Inventor name and Assignee search in PALM ExPo and EAST	10/27/2012	AK
(370/338,331-334.ccls. 455/432.1-433,436-445.ccls.)	10/27/2012	AK
EPO Data base: http://worldwide.espacenet.com/	10/27/2012	AK
Updated search	2/6/2013	AK
Updated search	6/17/2013	AK
Updated search	11/14/2013	AK
Updated search	5/9/2014	AK
Updated search	7/8/2014	AK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
see EAST search	see EAST search	7/8/2014	AK

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642

OK TO ENTER: /A.K./

07/07/2014

PATENT
Attorney Docket No.: HAVA-00401

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Group Art Unit: 2642
Vasudevan Ganesan	Examiner: Kasraian, Allahyar
Serial No.: 13/240,776	
Filed: September 22, 2011	**AMENDMENT AND RESPONSE TO OFFICE ACTION MAILED May 12, 2014**
For: **MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER**	162 N. Wolfe Rd. Sunnyvale, CA 94086 (408) 530-9700
	Customer No. 28960

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	Art Unit
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013	11/14/2013	11/14/2013	07/08/2014		
1	1	✓	✓	✓	✓	=	=	=		
2	2	✓	✓	✓	✓	=	=	=		
3	3	✓	✓	✓	✓	=	=	=		
4	4	✓	✓	✓	✓	=	=	=		
5	5	✓	✓	✓	✓	=	=	=		
6	6	✓	✓	✓	✓	=	=	=		
7	7	✓	✓	✓	✓	=	=	=		
8	8	✓	✓	✓	✓	=	=	=		
9	9	✓	✓	✓	✓	=	=	=		
10	10	✓	✓	✓	✓	=	=	=		
11	11	✓	✓	O	O	=	=	=		
12	12	✓	✓	✓	✓	=	=	=		
13	13	✓	✓	✓	✓	=	=	=		
	14	✓	✓	✓	✓	✓	✓	-		
	15	✓	✓	✓	✓	✓	✓	-		
	16	✓	✓	✓	✓	✓	✓	-		
	17	✓	✓	✓	✓	✓	✓	-		
	18	✓	✓	✓	✓	✓	✓	-		
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	34	-	-	-	-	-	-	-		
	35	-	-	-	-	-	-	-		
	36	-	-	-	-	-	-	-		

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13240776	GANESAN, VASUDEVAN
	Examiner	**Art Unit**
	ALLAHYAR KASRAIAN	2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/29/2012	10/27/2012	02/06/2013	06/17/2013	11/14/2013	11/14/2013	07/08/2014		
	37	-	-	-	-	-	-	-		
	38	✓	✓	✓	✓	✓	✓	-		

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

28960 7590 07/10/2014
HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	09/22/2011	Vasudevan Ganesan	HAVA-00401	7797

TITLE OF INVENTION: MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/10/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
KASRAIAN, ALLAHYAR	2642	455-432100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Haverstock & Owens LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Vasu Networks Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Cupertino, CA

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 08-1275 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Jonathan O. Owens/ Date October 9, 2014
Typed or printed name Jonathan O. Owens Registration No. 37,902

Electronic Patent Application Fee Transmittal

Application Number:	13240776
Filing Date:	22-Sep-2011
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Filer:	Jonathan O Owens
Attorney Docket Number:	HAVA-00401
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	480	480
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**480**

Electronic Acknowledgement Receipt	
EFS ID:	20377881
Application Number:	13240776
International Application Number:	
Confirmation Number:	7797
Title of Invention:	MOBILE TELEPHONE VOIP/CELLULAR SEAMLESS ROAMING SWITCHING CONTROLLER
First Named Inventor/Applicant Name:	Vasudevan Ganesan
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	HAVA-00401
Receipt Date:	09-OCT-2014
Filing Date:	22-SEP-2011
Time Stamp:	16:43:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$480
RAM confirmation Number	3147
Deposit Account	081275
Authorized User	OWENS, JONATHAN O.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	IssueFee_Transmittal_10_9_2014.pdf	145571 79a31b0f3af9f2010da28f1051781b9f344d2d08	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30262 bdc1ff40bfa8f2df4a1834d466559acb58247c1b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	175833		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/240,776	11/11/2014	8886181	HAVA-00401	7797

28960 7590 10/22/2014

HAVERSTOCK & OWENS LLP
162 N WOLFE ROAD
SUNNYVALE, CA 94086

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 4 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Vasudevan Ganesan, Cupertino, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.