Wi-Fi Exchange

Solution Brief

› be well connected

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iPass | Wi-Fi Exchange

Monetize your Wi-Fi network to other service providers and increase your market potential through the world's largest commercial Wi-Fi exchange. Set private rates with network partners through unilateral or bilateral agreements and control who can access your Wi-Fi network resources with granular precision.

The iPass Wi-Fi Roaming Exchange enables mobile service providers and Wi-Fi network operators to forge direct and bilateral network agreements in order to reduce costs, gain operational efficiencies and drive market growth. Mobile service providers benefit from gaining access to Wi-Fi networks, and Wi-Fi network operators benefit from gaining access to a larger user base.

The importance of a Wi-Fi Roaming Exchange for these parties is evidenced by the fact that *"Wi-Fi has firmly established itself as the most heavily-used wireless technology ever deployed in terms of the volume of data traffic transmitted over networks."* *

Furthermore, *"Wi-Fi hotspot deployments are predicted to rise 350 percent by 2015, and 58 percent of operators, including 47 percent of mobile operators, believe Wi-Fi hotspots are either very important or crucial to enhance their customers' experience, offload busy mobile broadband networks, and provide a value-added services platform."* *

Several business drivers are fueling the deployment of carrier-grade Wi-Fi hotspots, and the iPass Wi-Fi Exchange helps service providers realize these emerging market opportunities:

- Generate new revenue by selling Wi-Fi access to other service providers
- Create a compelling user-connectivity experience and value proposition to differentiate services, drive new customer acquisition and reduce churn
- Augment network capacity quickly and cost effectively by offloading mobile data traffic to Wi-Fi to reduce network and signalling congestion
- Enable the on-boarding of Wi-Fi-only devices, including several smartphone and tablet models, to expand services portfolio and increase addressable market potential

Success with iPass

Stemming from our long history as a Wi-Fi services innovator, iPass is widely recognized by leading national and international telecommunications service providers.

- **China Telecom** selected iPass OMX for Global Wi-Fi Roaming and Wi-Fi Exchange
- **China Mobile** selected iPass OMX for international Wi-Fi roaming and Wi-Fi Exchange
- **Deutsche Telekom** selected iPass OMX as foundation for its 'Wi-Fi Mobilize' service
- **T-Mobile USA** introduced secure 'Global Corporate Access' based on iPass Open Mobile
- **Orange Business Services** selected iPass Open Mobile for its 'Business Everywhere' solution
- **SK Telecom** selected iPass OMX for Global Wi-Fi Roaming for Android smartphones and tablets

* 'Global Developments in Public Wi-Fi', Informa Telecoms & Media report for the Wireless Broadband Alliance, November 2011

Features

- A single interface to the world's largest Wi-Fi exchange community, with 300 mobile network operators connected globally and support for unilateral and bilateral network agreements
- Seamless access to the world's largest commercial-grade Wi-Fi network, featuring certified WISPr interoperability
- Globally distributed data centers designed to reduce authentication latency; redundantly engineered to provide carrier-grade 99.999 percent availability
- Zero CAPEX, success-based monthly subscription model

Benefits

- Increase mobile network capacity quickly and cost-effectively by adding Wi-Fi
- Eliminate complex, costly point-to-point connections
- Normalize the interconnection interface between you and your partner networks
- Ease of deployment - provision direct agreements easily to increase speed to market and minimize resources required to support Wi-Fi network interconnections

Wi-Fi Roaming Exchange Services Made Simple

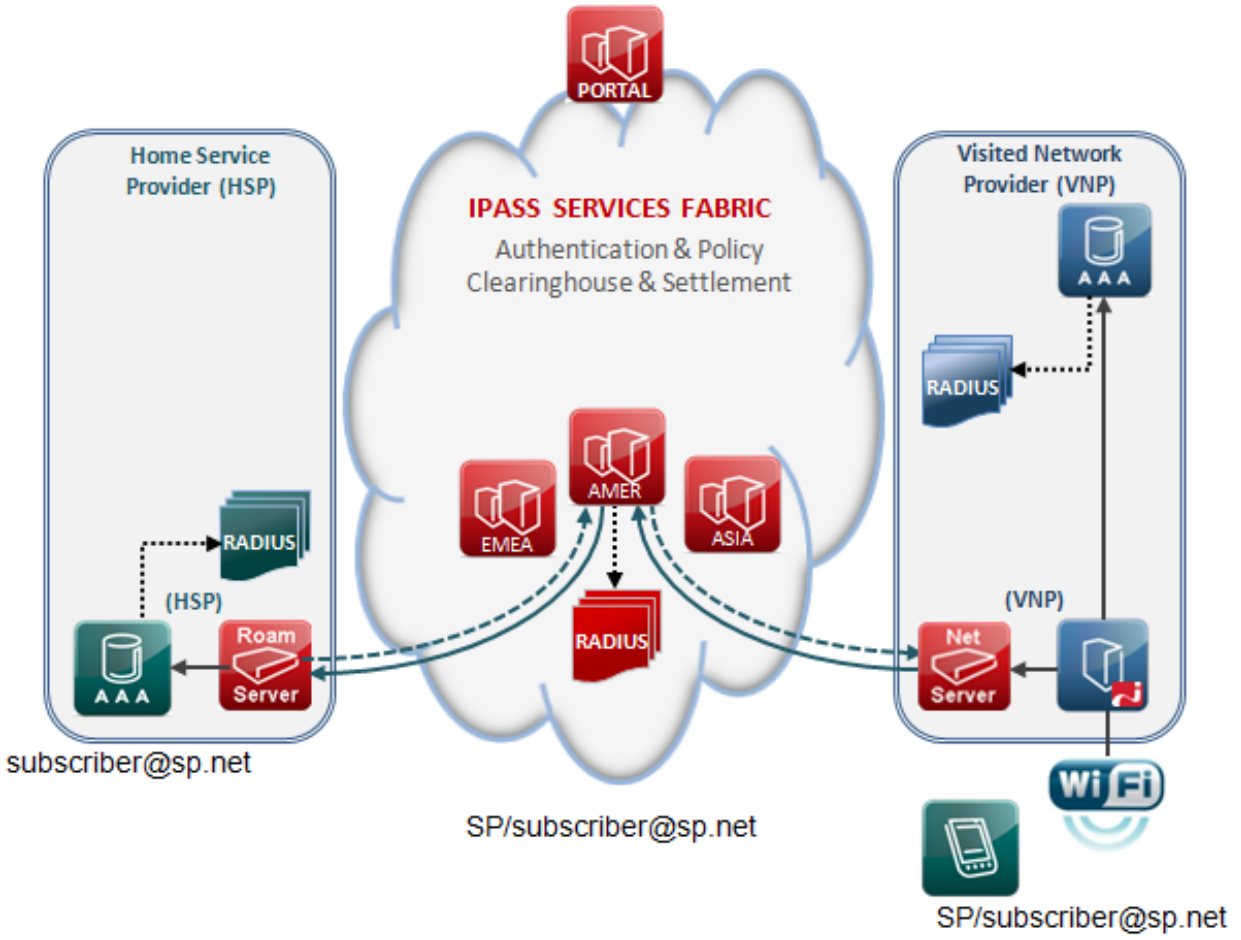
As part of the Wi-Fi Roaming Exchange service, iPass collects and stores RADIUS records from each party and makes them available 24x7 through a secure, web-based portal to view invoices, payment history, Call Detail Records (CDR) and offers a fully integrated support ticketing system.

Certified Wi-Fi Interoperability

In addition to private, unilateral or bilateral access to partner networks, the iPass Wi-Fi Roaming Exchange provides optional integrated access to the iPass Mobile Network, the world's largest commercial-grade Wi-Fi network featuring 100 percent certified WISPr compliancy to ensure interoperability with standards-based connection manager applications.

Example 1: Unilateral Wi-Fi Roaming Agreement

In this use case, two Service Providers (SP) have established a unilateral Wi-Fi roaming agreement that permits one SP (the Home Service Provider, or 'HSP') to roam onto the Wi-Fi Network of the other SP (the Visited Network Provider, or 'VNP'). A common instance of this use case is to establish a relationship where the HSP can gain access to Wi-Fi footprint and the VNP can generate in-bound roaming revenues while maintaining a direct SP-to-SP relationship. The commercial relationship and settlement for network usage is conducted between the SPs, with iPass providing the AAA interconnections.

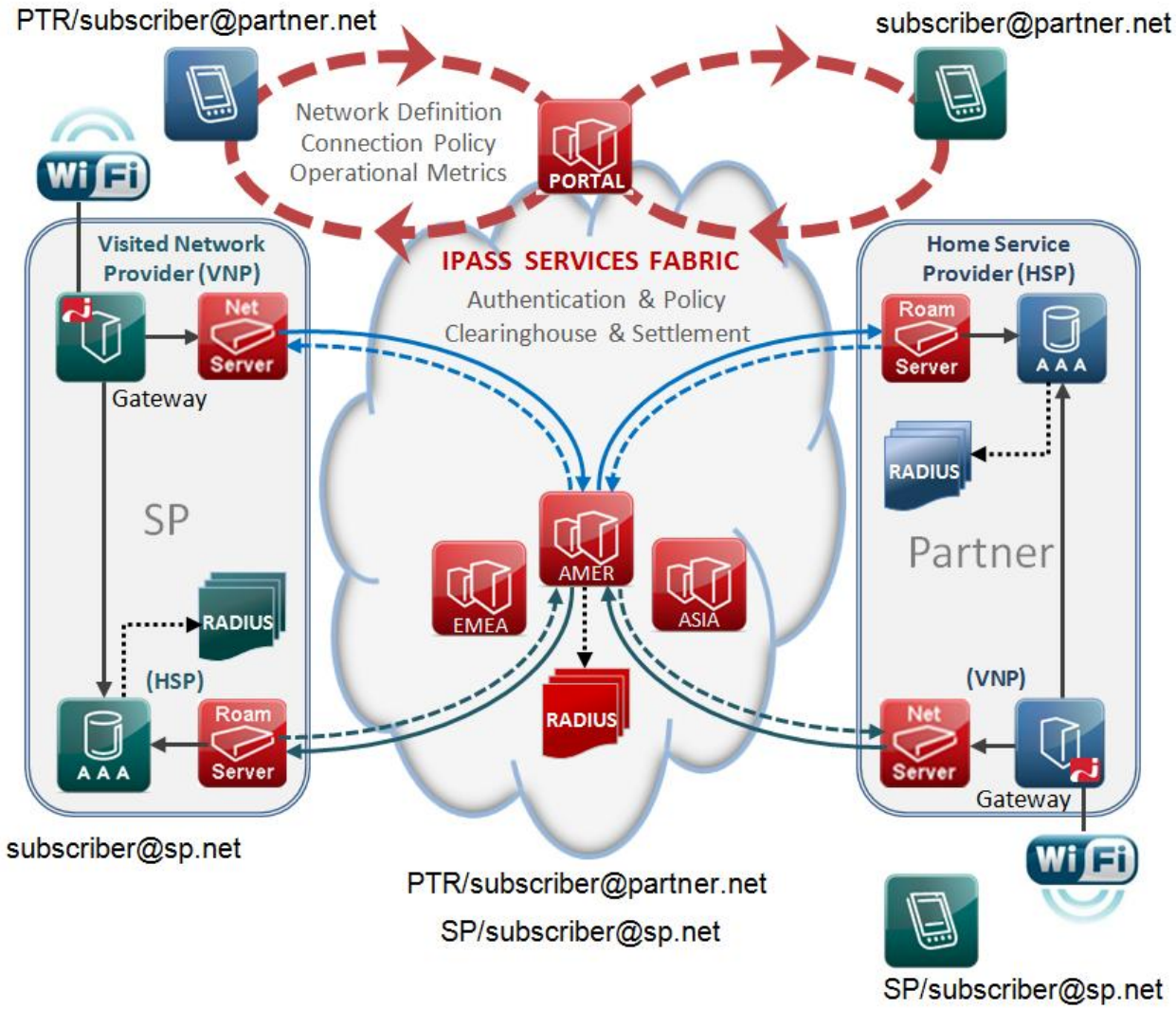


Connection Process

- A connection is initiated to a known direct unilateral partner network. The connection method, (such as a connection manager client) is determined by the SP's and may or may not include the use of the iPass Open Mobile (OM) platform.
- Credentials are supplied to the VNP's access gateway in the username@realm format (e.g., subscriber@sp.net), with the application-based network definition providing the routing information. (e.g., a prefix such as 'SP/').
- The VNP's AAA generates a RADIUS authentication request for this subscriber and, recognizing that the request is for a foreign subscriber based on the routing information, routes the request to the iPass NetServer.
- The iPass NetServer requests a connection to its preferred iPass Transaction Center, establishes a 128-bit SSL session with the iPass Transaction Server and then forwards the RADIUS authentication request.
- The iPass Transaction Server resolves the routing realm (e.g., @sp.net) of the inbound request and identifies the HSP to which the subscriber belongs.
- The iPass Transaction Server requests a connection to the HSP's primary RoamServer, establishes a 128-bit SSL session with the HSP's RoamServer and forwards the RADIUS authentication request.
- The HSP's RoamServer routes the request to the HSP's AAA server.
- The HSP's AAA server authenticates the supplied credentials and routes a response back to the VNP's access gateway using the same iPass communications pathway, only in reverse (i.e., RoamServer to Transaction Center to NetServer to VNP access gateway) authorizing the subscriber for Internet access.
- The VPN access gateway permits access to the Internet for the subscriber and generates RADIUS accounting Start and Stop records for the session, storing copies of these accounting records in their database while forwarding copies on through the iPass NetServer to the iPass Transaction Center.
- The iPass Transaction Center stores copies of the RADIUS accounting records in the iPass database while forwarding copies through the iPass RoamServer to the HSP's AAA.
- The HSP's AAA receives the RADIUS accounting records and stores copies in its database.

Example 2: Bilateral Wi-Fi Roaming Agreement

In this use case, two SP's that also operate Wi-Fi services have established a bilateral Wi-Fi roaming agreement. The subscribers of each SP are given access to each other's Wi-Fi networks. Both entities serve as the HSP for their own subscribers and the VNP for their partner's subscribers. The commercial relationship and settlement for network usage is conducted between the SPs, with iPass providing the AAA interconnections.



Connection Process

- As outlined above in "Example 1: Direct Unilateral Wi-Fi Roaming Agreement"; however, the connection process would now apply to both parties where each is acting as **both** an HSP and a VNP.

About iPass

Founded in 1996, iPass (NASDAQ: IPAS) delivers the world's largest commercial-grade Wi-Fi network and trusted connectivity platform.

Ensuring ease-of-use and seamless integration of Wi-Fi services is essential to our business, that's why we are actively involved in defining and supporting industry standards. iPass is a member of the Wireless Broadband Alliance and co-authored the Wi-Fi Alliance WISPr 1.0 protocol, a standard for connection management software to access Wi-Fi networks.

iPass has a long-standing, successful history of Wi-Fi services innovation dating back to the year 2000 when iPass and Cisco announced the industry's first broadband roaming service, providing business travelers with simplified, high-speed and secure remote access to their corporate networks. We have also been a driving force in the enablement of in-flight Wi-Fi services, defining technical integrations to meet strict US Federal Aviation Administration (FAA) requirements.

iPass has unmatched capabilities for Wi-Fi authentication and transaction settlements, holding 21 US patents, six (6) international patents and seven (7) US patents pending and is the only company integrating Wi-Fi Roam-in, Roam-out, Offload and Exchange services simultaneously on a carrier-grade platform.