

Use Case

Data Offload

Service providers can capitalize on mobile data traffic growth and alleviate network congestion by offloading data traffic from 3G to Wi-Fi. They can partner with Wi-Fi providers, or use their existing Wi-Fi assets to offer consumers access at competitive rates, creating new revenue opportunities that were previously unavailable. By implementing multi-access networks today, service providers are preparing for their 4G future— with solutions that work across access technologies and balance network traffic efficiently.

Bridgewater's Mobile Data Offload solutions provide 3G service providers with carrier-grade authentication, authorization, accounting and interworking support that ensures a transparent and secure single sign on experience to subscribers as they move between 3G and Wi-Fi networks. These solutions allow service providers to leverage their investment in existing authentication systems such as the Home Location Register (HLR) by federating subscriber data in Wi-Fi deployments.

Data Offload Opportunities and Challenges

Leverage existing Wi-Fi Investments

Service providers can use their own Wi-Fi hotspots to bolster 3G network capacity, proving seamless offload in areas of high hotspot concentration. This allows them to provide competing 3G/Wi-Fi packages and common access to services across networks. Operator specific content, such as music downloads and games, can be provided when subscribers are on their Wi-Fi network.

Leverage Wi-Fi partnerships

Subscribers will continue to use Wi-Fi - a convenient, cheap and ubiquitous service. The deployment of Wi-Fi by service providers is both a defensive tactic to prevent churn and a revenue generator. Wi-Fi partnerships enable service providers to gain access to a greater share of the subscriber wallet than was previously available. Wi-Fi offload also allows service providers to compete with standalone Wi-Fi providers.

Challenges in Wi-Fi offload

- Service providers must ensure that subscribers receive the same user experience regardless of access network. Service portability/parity and service continuity across multiple access networks is essential.
- Lack of single sign on for subscribers impacts the user experience and creates barriers to service use.
- Subscriber authentication data resides in the Home Location Register (HLR) – this is not easily accessed from non-3GPP networks, such as Wi-Fi.
- The HLR is load sensitive and cannot handle high traffic volumes.
- The HLR does not support Wi-Fi off-load rules – it cannot communicate with Wi-Fi access points.

Solution

Bridgewater's Mobile Data Offload solution includes:

- The Bridgewater® Service Controller anchored by Bridgewater's Subscriber Data Broker™ which securely and transparently re-authenticates and re-authorizes subscribers and performs critical accounting functions as they move from a congested 3G network to a Wi-Fi hotspot. It federates subscriber data from existing HLRs and caches that data to ensure fast and secure access to Wi-Fi.
- The market leading Bridgewater® Policy Controller (PCRF) applies real-time network, application and subscriber policies to manage mobile data growth.

It can be used for both HSPA/Wi-Fi offload and EVDO/Wi-Fi offload:

Wi-Fi/HSPA Interworking Features

- 3GPP AAA support for Wi-Fi interworking
- EAP authentication (EAP-SIM/AKA)
- Uses existing SIM-based authentication

- Leverages the existing HLR – federates HSPA subscriber, authentication vectors, pulls and caches authentication vectors in the Bridgewater Service Controller to enable fast reauthentication. Offloads the load-sensitive HLR to manage heavy data traffic.
- Wi-Fi Access Point Name (APN) mapping

Wi-Fi/EVDO Interworking Features:

- Proxy support for interoperability with legacy AAA systems – enables single sign on
- Flexible subscriber authorization (Time of Day/Location/Operator) – service push
- Billing mediation support enables revenue sharing with Wi-Fi providers
- Intercept access point for Lawful Intercept
- Protects subscriber privacy with Wi-Fi partners.

Data Onload Solutions for MSOs

With the surge in demand for mobile data services, cable MSOs can capitalize on Wi-Fi to bring innovative new services to their subscriber base. By bundling cable and Wi-Fi services, MSOs can enable attractive new mobile services that improve customer loyalty and provide added value for subscribers, such as convenient WiFi access in urban centers.

Bridgewater's Mobile Data Onload solutions provide cable operators with carrier-grade authentication, authorization, accounting and interworking support that ensure a transparent and secure single sign-on experience for cable subscribers accessing WiFi services.

The Bridgewater Service Controller and Subscriber Data Broker leverage existing subscriber databases and backend infrastructure to ensure service portability in WiFi, and interoperate with leading WiFi equipment providers.

Benefits for Service Providers and Subscribers

- **Alleviates 3G network congestion and reduces costs** by offloading mobile data traffic to a Wi-Fi hotspot without the need to provision these services in the HLR. Service providers deploying a multi-access offload strategy can expect savings in the range of 20 to 25 per cent per annum.
- **Provides secure and transparent access** as subscribers move to a Wi-Fi hotspot and back to a 3G network again without service interruptions or the need for subscribers to sign in again.
- **Increases revenues** by directing subscribers to operator-owned Wi-Fi networks as part of a service bundle or through revenue share agreements with Wi-Fi hotspot providers.

The Bridgewater Advantage

Extensive Multi-Access Network Support

Bridgewater's products are access-network agnostic, enabling seamless mobility and service portability across network types. This is a critical future proof capability as service providers leverage multiple access networks simultaneously to support new services, enable data offload across networks, and migrate to 4G.

Service Enablement

By having a common subscriber view, service providers can offer flexible service bundling options across all networks and devices, allowing for a more unified subscriber experience. For example, users will not have their sessions disconnected while being re-authenticated once they are in range of a new network.

Interworking

Service Controls for multi-access networks need to simultaneously support 3G, 4G and Wi-Fi technologies to manage subscriber access to networks. This includes authorization and important accounting functions required for billing and other purposes. Support for 3GPP AAA functions for interworking between 3GPP and non-3GPP networks such as EVDO, Wi-Fi, WiMAX, and Femtocells is also required. Wi-Fi interworking functions between fixed and mobile networks – for example to support data offload to Wi-Fi hotspots – is essential.

Common subscriber management capability

This allows service providers to use a common approach to managing authentication and authorization for individuals, groups of subscribers, and devices across multiple access networks including single sign on.

Vendor Neutral

Bridgewater provides best-of-breed solutions that support multiple vendor equipment types simultaneously. By deploying a vendor agnostic solution, service providers can avoid vendor lock-in, exploit economies of scale, and leverage existing investments.

Broad Interoperability

Bridgewater has completed extensive interoperability testing with security gateways and Wi-Fi provider access points. The solutions also enable migration from 3G to 4G (LTE and WiMAX).

About Bridgewater Systems

Bridgewater Systems, the mobile personalization company, enables service providers to efficiently manage and profit from mobile data services, content and commerce. The company's market leading mobile personalization portfolio provides a real-time, unified view of subscribers including entitlements, devices, networks, billing profiles, preferences and context. Anchored by Bridgewater's Subscriber Data Broker™, the portfolio of carrier-grade and standards-based products includes the Bridgewater® Service Controller (AAA), the Bridgewater® Policy Controller (PCRF) and the Bridgewater® Home Subscriber Server (HSS). More than 150 leading service providers including America Movil, Bell Canada, Clearwire, Cox, Hutchison Telecom, Iusacell, Scartel, SmarTone-Vodafone, Sprint, Tata Teleservices, Tatum, Telmex, Telstra, and Verizon Wireless use Bridgewater's solutions to rapidly deliver innovative mobile services to over 150 million subscribers. For more information, visit us at www.bridgewater.com.

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